

**Pharmacists' perceptual systems
regarding their role in medication
adherence in South Africa:
An Interactive Qualitative Analysis
approach**

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Thesis submitted for the degree Doctor of Philosophy in
Pharmacy Practice at the North-West University

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Graduation May 2018

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PREFACE

I hereby wish to express my sincerest gratitude and appreciation towards the following persons and institutions for their contributions to this study:

- My promoter, Prof Johan C Lamprecht, for the guidance from a great distance during the long years of this research project.
- My co-promoters Prof Karel FH Botha and Prof Gerda M Reitsma, for their inputs, guidance and an open door close by to discuss any topic.
- Dr Danny McCoy, for your wonderful expert help and inputs and positive encouragement from afar. Your kind support meant a great deal to me!
- MUSA, for their encouragement and financial contribution.
- The Department of Pharmacy Practice and all my colleagues for your inputs and assistance to help me through. Good wishes to those of you nearing the end of your Ph.D. journey and many wishes of support for the other colleagues who still need to embark on their journeys.
- The School of Pharmacy, for their support.
- My wife, Marietta, for all your positive inputs, words of encouragements, support and love when things were not that positive – but still one always had great happiness and joy emanating from small achievements. I do appreciate everything you did - without your support this journey would not have been possible. We did it! For the first time in 34 years of continuous study between us, it is now time to start enjoying life!
- My children, Willem and Mariechen, for your inputs and understanding when father was studying. Thanks you for all the good wishes, support, encouragement, phone calls and messages with best wishes. For the first time in many years, our family can have a Christmas without somebody studying.
- My mother, Ernstine Basson, for encouragement and support and my late father, Willem Basson: I've done it!
- All the rest of my family, for encouragement and support.
- All the participants and respondents of my research project, thank you for the support of the pharmacy community because without your inputs this study would not have been possible.
- To all the support personnel and other people who assisted with administrative tasks to make such a research project and report possible: I do sincerely appreciate all your inputs.
- Soli Deo Gloria

ABSTRACT

The major purpose of this exploratory study was to understand what the perceptions are of pharmacists in South Africa regarding their role in the medication adherence of a patient.

The WHO (World Health Organization) referred to medication non-adherence as a “worldwide problem of striking magnitude” and improving adherence to medication has become a priority to health care researchers and policy makers (WHO, 2003:xiii). Research suggests that 30% to 50% of patients do not take their medicine for chronic conditions as prescribed (Horne *et al.*, 2005:10). The costs of medication non-adherence to patients are considered to be a missed opportunity for treatment gain and, if their condition worsens, a possible decline in their quality of life (Clifford *et al.*, 2010:78). Medication adherence also had emerged as a multi-faceted phenomenon where the best results are obtained if more than one facet can be addressed simultaneously. The importance of the pharmacist as a factor in medication adherence cannot be negated because the pharmacist fulfils an essential link in the chain of health-care to the patient

The general research objective of this study was to use the Interactive Qualitative Analysis (IQA) approach to construct and describe the pharmacists’ cognitive mind map regarding the perceptual views of their roles in South Africa in terms of medication adherence of patients.

IQA data were collected during three processes. A focus group with pharmacists, selected from a constituency representing pharmacists from as many as possible parts of the pharmaceutical sector in South Africa, identified the components (affinities) of the pharmacists’ perceptual systems (Northcutt & McCoy, 2004:47). An analysis revealed six main categories, named affinities, in IQA are External Barriers, Disposition, Communication Skills, Professionalism, Information Role and Motivational Role

Individual semi-structured IQA interviews with pharmacists served to add richness and in-depth descriptions of the meaning of the affinities.

A web-based questionnaire was developed with the purpose of capturing the responses of South African pharmacists in terms of their perceived relationships of the affinities as generated by the focus group.

External Barriers were identified as the primary driver of the system with Communication Skills in the modulator role. The participants indicated the Motivational Role as the primary outcome (primary role) regarding their roles in medication adherence.

The system produced two identifiable loops or cycles namely The Turmoil loop and The Pharmacists Portrayal Loop. Communication Skills modulated both loops, preventing them from becoming vicious cycles spinning out of control to detrimentally affect the medication adherence role of the pharmacist.

Pharmacists experience External Barriers very negatively as they cannot escape them or have limited power or authority over them. External Barriers are a reality in the practice of pharmacists in South Africa and ultimately determine the interaction and relationship with the patient.

The respondents considered Communication Skills as very important.

The perceptual system might not yet be a true representation of medication adherence but rather a system reflecting compliance with medication. However, it shows a significant but unknowing shift in terms of the principles of a formalised medication adherence structure.

The respondents perceived that they as pharmacists have a role to play in the medication adherence of their patients and willingly accepted the role, as they really do care for their patients and do want to help patients to the best of their ability.

This study was the first to be done on the perception of South African pharmacists on their role in the medication adherence of their patients and provide new and previously unknown information in the format of a system and model to benefit all pharmacists in South Africa.

Key words: Pharmacists, Interactive Qualitative Analysis, Medication adherence, South Africa, Patients, Mind map, Systems Influence Diagram, External Barriers, Communication Skills

LIST OF ABBREVIATIONS

ACD	Axial Code Document
ACT	Axial Code Table
ART	Anti-Retroviral Therapy
ART (IQA)	Affinity Relationship Table
CD	Compact Disk
CPD	Continuous Professional Development
DOH	Department of Health
FIP	International Pharmaceutical Federation
GP	General Practitioner
GPP	Good Pharmacy Practice document
HCP	Health-care Professional (Practitioner)
IQA	Interactive Qualitative Analysis
IRD	Interrelationship Diagram
MI	Motivational Interviewing
NDoH	National Department of Health
NHI	National Health Insurance
NIMART	Nurse-initiation and management of ART
PC	Pharmaceutical Care
PHC	Primary Health-Care
SAPC	South African Pharmacy Council
SID	Systems Influence Diagram

SOP	Standard Operating Procedure
SSA	Sub-Saharan Africa
TB	Tuberculosis
TCD	Theoretical Code Document
TCT	Theoretical Code Table
TQM	Total Quality Management
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

LIST OF DEFINITIONS

Axial Code Document
(Individual and Combined)

The Axial Code Document is a term developed by the researcher and is similar to the Axial Code Table. The difference is that the Atlas.ti™ Version 7 programme was used to record the axial code, the affinity name, the paragraph of transcript that referred to the quote as well as the document name of the interview for retrieval purposes. A new unique document called the **Individual Interview** Axial Code Document (ACD) with the axial codes and all other information associated with the affinities for the specific interview was created, exported and stored in the programme. The end product was then not a table but a document (Chapter 3).

“Axial data are transferred from each Individual Interview Axial Code Document (ACD) to a **Combined Interview** Axial Code Document (ACD). By combining all interviews into one document, the researcher creates a database for the entire set of respondents containing all Axial Codes for all affinities, with each code containing a link or a reference to the transcript and line numbers that produced the code. This table is very similar to the one used to record axial codes for an individual interview except that it also contains a link to the transcript that produced the code” (Northcutt & McCoy, 2015:26).

Axial Code Table
(Individual and Combined)

“The Axial Code Table (ACT) is the primary documentation for all utterances that illustrate the range of meaning of each affinity for each respondent. Once the transcripts have been prepared, the researcher analyses the text for axial codes, which are specific examples of discourse that illustrate or allude to an affinity. The researcher then documents the reference for retrieval by recording the affinity number on the line of transcript that refers to the affinity and by documenting the line numbers and affinity numbers in the **Individual Interview** Axial Code Table (ACT)” (Northcutt & McCoy, 2015:23).

“Axial data are transferred from each Individual Interview Axial Code Table (ACT) to a **Combined Interview** Axial Code Table

(ACT). By combining all interviews into one table, the researcher creates a database for the entire set of respondents containing all Axial Codes for all affinities, with each code containing a link or a reference to the transcript and line numbers that produced the code. This table is very similar to the one used to record axial codes for an individual interview except that it also contains a link to the transcript that produced the code” (Northcutt & McCoy, 2015:26).

Affinity ““Map pieces” of a system or systems” (Northcutt & McCoy, 2015:5). “Categories of meaning or common themes of a system” (Northcutt & McCoy, 2015: 16). “Common themes or sets of textual references that have an underlying common meaning or theme, synonymous to *factors* or *topics*” (Northcutt & McCoy, 2015:16).

Affinity Relationship Table “Affinity Relationship Table (ART) records the nature of the relationships between all possible pairs of affinities as determined by the respondents (simple ART). The detailed ART can also capture a statement of the reasoning of the cause-and-effect relationships between the affinities” (Northcutt & McCoy, 2004:152).

Affinity Write-Up “The IQA Affinity Write-up is a composite story of the group as a whole. The researcher is tasked with organizing the multiple interviews so that they tell the story of the group. The researcher seeks to identify what “does the affinity mean?”, “what are the sub components?” and “what is the range of meaning?” for each affinity and is presented in the words of the participant themselves” (Northcutt & McCoy, 2015:26).

Axial coding “Axial coding seeks to name, reorganize, clarify, and refine the affinities” (Northcutt & McCoy, 2016:16). Axial codes are specific examples of discourse that illustrate or allude to an affinity” (Northcutt & McCoy, 2015:25).

Constituency “Constituency is a term reflecting both an interest (perceptual or phenomenological distance) and power over the phenomenon,

which is at the centre of the problem. A constituency is anyone who has something to say about the phenomenon and anyone who can do something about the phenomenon” (Northcutt & McCoy, 2015:9).

Cluttered SID

“A Cluttered SID is one that contains all relationships identified by the respondents” (Northcutt & McCoy, 2015:27).

“The first version of the SID contains all of the links identified by the participants in the protocol leading to the IRD and is saturated. The Cluttered SID, while being comprehensive and rich, can be very difficult to interpret, even for a modest number of affinities that are highly interlocked or embedded within the system” (Northcutt & McCoy, 2015:31).

Focus groups

The term “*IQA focus groups* identifies the affinities of a system or systems that will ultimately represent the group’s experience with the phenomenon. The focus group identifies the “states,” or the relationships between each of the affinities. Affinities defined by the group are then used to develop a protocol for interviews” (Northcutt & McCoy, 2015:5).

“*IQA focus groups* is a group of people who share some common experience, work or live within some common structure, or have a similar background” (Northcutt & McCoy, 2015:14).

Individual Interviews

“*IQA* semi-structured individual interviews further explore the meanings of the affinities by obtaining rich descriptions of each affinity and each relationship and identify relationships between each theme by means of a protocol. A comprehensive system diagram is developed from the interviews to explain the phenomenon” (Northcutt & McCoy, 2015:5).

“The interview protocol consists of two parts: 1) the open-end *axial interview* designed to provide rich description of affinities by the respondents; and 2) the structured *theoretical interview* designed to identify relationships between affinities” (Northcutt & McCoy, 2015:20).

Interpretation and Implications	“The IQA Interpretation / Implication provides the researcher the opportunity to describe the phenomenon in the researcher’s voice. The researcher is free to interpret the data, suggest interventions and introduce other literature that reinforces the researcher’s results. The researcher re-engages with the literature to accomplish two goals: first, to re-interpret the literature reviewed in the light of what has been learned and second, to identify other areas of literature that now have relevance in the light of what has been learned. The applications section of this chapter is the investigator’s response to the question of pragmatic utility: What is the study good for?” (Northcutt & McCoy, 2015:24).
Interrelationship Diagram	Interrelationship Diagram (IRD) “The SID is a picture drawn using a set of rules for rationalization on a summary of the theoretical codes called an Interrelationship Diagram (IRD) produced by the respondents”. “The relationships are transferred to an Affinity Relationship Table (ART) and then processed through another protocol called an Interrelationship Diagram” (Northcutt & McCoy, 2015:27).
IQA	“Interactive Qualitative Analysis is a systems approach to qualitative research with systematic, protocol driven procedures. IQA identifies relationships among self-identified components of an issue and have the ability to draw a system of influence” (Northcutt & McCoy, 2015:1). “The purpose of IQA is to draw a picture of the system (SID) that represents the perceptual terrain or the mind-map of an individual or group with respect to a phenomenon represented by the issue statement” (Northcutt & McCoy, 2015:27).
Issue Statement	“The Issue Statement is the question the researcher asks to get the audience (participants of focus group) to speak about the phenomenon. It is quite simple and is always a variation of <i>Tell me about the phenomenon</i>, but it must be presented in terms that are real to a given constituency” (Northcutt & McCoy, 2015:10).

Pareto Principle	“Something like 20% of the variables in a system will account for 80% of the total variation in outcomes” (Northcutt & McCoy, 2004:156). “A minority of the relationships in any system will account for a majority of the variation within the system” (Northcutt & McCoy, 2015:32).
Phenomenon	“The phenomenon is an abstract idea (but a simple name) capable of producing a system with elements and relationships that not only describe the phenomenon, but how it works” Northcutt & McCoy, 2015:9).
Report	“IQA report name and describe the elements (affinities) of the system, explain the relationships among the element of a system and compare system. The report is split into two phases (1) Results and Analysis and (2) Interpretation and Implications” (Northcutt & McCoy, 2015:23).
Research Design	“IQA Research Design provides a series of tools to help articulate problems of interest, to identify constituencies that have an interest in the problem, and to state research questions that are implied by the problem statement” (Northcutt & McCoy, 2015:5).
Research Questions	“There are three universal Research Questions. If only one constituency is involved two, and only two, research questions can be answered from a systems point of view namely What are the elements (components) of the system? Secondly, How are these elements (components) related to each other?” (Northcutt & McCoy, 2015:10).
Results / Analysis	“IQA Results / Analysis provides the researcher the opportunity to describe the phenomenon in the participant's voice and to present the data free of commentary, interpretation or opinion by the researcher. Through a rigorous use of protocols, transcripts are coded and systems are drawn. The story of each constituency group is told by aggregating axial codes of each affinity to tell the story of the group as a whole. The system is built one relationship

	at a time by aggregating theoretical codes to tell the story of the group as a whole. The resulting report is an Axial Write-up, Theoretical Write-up and presentation of the SID” (Northcutt & McCoy, 2015:23).
Systems Influence Diagram	Systems Influence Diagram (SID) “Using a set of protocols or rules stemming from IQA systems theory, a system is drawn that represents a “mind-map” of the group’s reality”. “The SID is a picture drawn using a set of rules for rationalization on a summary of the theoretical codes called an Interrelationship Diagram (IRD) produced by the respondents” (Northcutt & McCoy, 2015:27).
System	“Systems have two components: <i>elements</i> and <i>relationships among the elements</i>. The elements, for the purposes of this approach to qualitative research, categories of meaning. Understanding a system means to identify the elements of the system, described the relationships among the elements and understand how the elements and relationships dynamically interact to result in different <i>states</i> of the system” (Northcutt & McCoy, 2015:5).
Theoretical Code Document	“The Theoretical Code Document (TCD) is a term developed by the researcher and is similar to the Theoretical Code Table. The difference is that the Atlas.ti™ Version 7 programme stored all information associated with the theoretical code such as the directionality of the relationships as well as the descriptive explanations of how the relationships worked in the respondents’ words, i.e. the quotation as well as the paragraph line was stored in the document. A new unique document called the Individual Interview Axial Code Document (ACD) with the axial codes and all other information associated with the affinities for the specific interview were created, exported and stored in the programme. The end product was then not a table but a document” (Chapter 3).

Theoretical Code Table	Theoretical Code Table (TCT) “The researcher examine each of the transcripts of the interviews for Theoretical Codes. Theoretical Codes are recorded in an Individual Interview Theoretical Code Table (TCT), which captures both directionality of relationships as well as descriptive explanations of how the relationships work in the respondent’s words” (Northcutt & McCoy, 2015:27).
Theoretical coding	“Theoretical Coding refers to ascertaining the perceived cause-and-effect relationships (influences) among all the affinities in a system. In the interview setting, this is accomplished by facilitating a systematic process of building hypotheses linking each possible pair of affinities” (Northcutt & McCoy, 2004:149).
Uncluttered SID	“The Uncluttered SID is the final version of the system in which redundant links are removed. The Uncluttered SID is the simplest possible representation consistent with all the relationships contained in the IRD” (Northcutt & McCoy, 2015:27, 32).

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CHAPTER 1: INTRODUCTION

1.1 Introduction

This chapter reflects on the general layout of the study that includes the background and rationale for the study, the research questions, research objectives, research methodology as well as the general division of chapters.

The purpose of this study was to explore pharmacists' perceptual systems of their role in medication adherence in South Africa through an Interactive Qualitative Analysis (IQA) (Northcutt & McCoy, 2004).

For the past decade and longer, researchers have been searching for the factor(s) that may regulate medication adherence. This search was and still is driven by the knowledge that medication non-adherence has substantial negative effects on health-care delivery, health-care costs, quality of life of current patients (Afolabi *et al.*, 2009:1), an evidence-based cut point by which to define medication adherence in patients for the evaluation of patient's adherence levels and hence therapeutic success (Wu *et al.*, 2009:290) as well as on the treatment of future patients (Paterson *et al.*, 2000:28).

The WHO (World Health Organization) referred to medication non-adherence as a "worldwide problem of striking magnitude" and improving adherence to medication has become a priority to health care researchers and policy makers (WHO, 2003:xiii).

Research suggests that 30% to 50% of patients do not take their medicine for chronic conditions as prescribed (Horne *et al.*, 2005:10). The costs of medication non-adherence to patients are considered to be a missed opportunity for treatment gain and, if their condition worsens, a possible decline in their quality of life according (Clifford *et al.*, 2010:78). Several studies have calculated the cost of medication non-adherence in patients. At a press conference in Washington in December 2006, J. Lyle Bootman, the chairman of P3C, told reporters that of the estimated 100 billion dollars spent as a result of medication non-adherence between 60 billion dollars and 70 billion dollars could be saved with proper adherence (Foxhall, 2007:1).

Costs also arise from the perspective of the health-care system. The cost of unused or unwanted medications exceeds 100 million pounds (GBP) annually (Department of Health, 2008:31) and the increased likelihood of hospitalisations and complications as a result of medication non-adherence can also increase costs. Non-compliance with prescribed drug therapies has been estimated as high as 50% in Canada in 1997 with an estimated seven to nine billion dollars annually in direct and indirect costs associated with non-compliance (CPC Healthcare

Communications, 2002a:2). According to CPC Healthcare communications (CPC Healthcare Communications, 2002a:2) it is possible that the cost of non-compliance at a rate of 50% for a medicine brand may be as much as \$4,5 million. Adler (2008:1) reported that medication non-compliance alone costs the US as much as 100 billion dollars and 125 000 lives a year and that the revenue lost to the US pharmaceutical industry is as much as 30 billion dollars annually.

Alarmingly, it was found that patients over-estimated their perceived level of medication adherence when survey results were compared to actual records of prescription dispensing. Express Scripts (2014:554) found that patients whose actual levels of adherence were less than 25%, reported adherence levels higher than 90%. \$37.1 billion was spent on avoidable medical and pharmacy expenses as a result of patient's non-adherence to medication treatment.

All the above-mentioned points are some of the results and complications of the patient not adhering to his or her medication or treatment and the researcher will elaborate on these as part of the literature study.

1.2 Background and rationale for the study

The research into medication adherence has also developed from a bio-medical paradigm where patients were 'simply' expected to comply with treatment guidelines to a paradigm where patients and providers are co-responsible for developing and implementing applicable treatment programmes (Christensen, 2004:121).

According to Van Dulmen *et al.* (2008:7) the International Expert Forum on Patient Adherence has called for research to develop simple solutions to improve adherence originating from multidisciplinary perspectives. Clifford *et al.* (2010:80-81) reported the existence of medication adherence research studies in community pharmacies in England related to compliance aids, patient education, and community pharmacy involvement in discharge planning or patient-tailored intervention, but indicated that research to evaluate the effectiveness of community pharmacists' efforts to support patients with adherence is relatively limited.

As the population of the United States is aging, the prevalence of chronic diseases grows. (Braithwaite *et al.*, 2013:3). In 2000, people aged 65 and older represented 12.4% of the American population. By 2030 this segment is expected to increase to 19%. In the USA almost 45% or approximately 133 million people live with at least 1 chronic disease. As the population continues to age and the prevalence of chronic diseases grows, medication adherence will be an increasingly important aspect of effective treatment.

1.2.1 Medication adherence is a multi-faceted phenomenon

Medication adherence also emerges as a multi-faceted phenomenon where the best results are obtained if more than one facet can be addressed simultaneously. In research in Nigeria, the differences in adherence of HIV patients were associated with two aspects: available counselling services and free preliminary ARV eligibility investigations (Afolabi *et al.*, 2009:1). One of the few conclusive pieces of evidence regarding adherence is a link between a combination of the self-efficacy and locus of control of the patient and medication adherence (Christensen, 2004:49). Asthma and chronic pulmonary disease patients with triple intervention programmes showed promising improvements in quality of life and reductions of hospital admissions when compared to patients with normal intervention programmes (Lemmens *et al.*, 2009:670).

Demonceau *et al.* (2013:1) conducted a systematic review as well as a meta-analysis to identify studies and to compare the efficacy of strategies and components. The strategies and components are to improve implementation for the prescribed drug dosing regimen and maintain long term persistence. The evidence of the meta-analysis suggest that feedback of patients of their recent dosing history as well as cognitive-educational interventions are potentially effective approaches for the enhancement of medication adherence of patients. The researchers also indicates that future research is needed on adherence-enhancing interventions with a focus on the multifaceted nature of non-adherence. Only studies were included in which electronic monitoring were used to automatically compile the dosing history, providing the most reliable estimate of adherence (Demonceau *et al.*, 2013:14).

1.2.2 Factors associated with medication adherence

There are primarily two groups of factors that affect patient adherence, namely external influences and patient experience. The external factors are factors outside the patient's control, e.g. pharmacist, health care provider, product and packaging and so on. Patient experience would include all factors that contribute to a patient's experience of using prescriptions e.g. costs, adverse reaction, co-morbidities and so on (CPC Health Care Communications, 2002b:3).

Unintentional non-adherence occurs when the patient wants to follow the agreed treatment but is prevented from doing so by barriers that are beyond their control. Examples of unintentional non-adherence include poor recall or difficulties in understanding the instructions, problems with using the treatment, inability to pay for the treatment, or simply forgetting to take it (Nice, 2009:4). Unintentional non-adherence is largely driven by barriers such as a lack of skills or the ability of the patient to take medicine such as forgetfulness because of cognitive changes in older patients or problems with manual dexterity or unplanned changes in routine (Gould & Mitty, 2010:291).

According to Clifford *et al.* (2008:41) *intentional* or purposeful non-adherence is associated with the patient's motivation and beliefs of medicine as ineffective, not necessary and unsafe (Gould & Mitty, 2010:291).

Medication adherence also seems to be a behavioural change phenomenon from the perspective of the patient. When diagnosed, patients are required to make, *inter alia*, life-style changes, diet changes and health belief changes. Although the intention to change may be present, it is the actual change in behaviour that results in medication adherence. In this regard there is much to learn from the behavioural sciences. One of the behavioural science approaches, for example, that can overcome the ambivalence that prohibit the desired change is motivational interviewing (MI) (Miller & Rollnick, 2002:26). Motivational interviewing (MI) is a "client centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence". MI was originally targeted to the field of addictive patients, but has gained empirical support in various areas of health behaviour change such as treatment adherence, diet and physical activity. Professionals such as health-care providers used MI as a method of communicating to patients to make life important changes.

A major shortcoming in the battle against medication non-adherence is the absence of a central model to guide research and actions to address medication non-adherence (Christensen, 2004:38).

When considering some of the factors associated with medication adherence, it seems that the factors may be factors inherent to the health care system, factors inherent to society, factors inherent to the illness, factors inherent to the patient and factors inherent to the care provider (pharmacist). The factors inherent to the care provider (pharmacist) need further investigation.

1.2.3 The role of the pharmacist as a health-care provider

The importance of the pharmacist as a factor in medication adherence cannot be negated because the pharmacist fulfils an essential link in the chain of health-care to the patient. According to a survey commissioned by the Department of Health of Great Britain (2008), it has been found that 75% of people have visited a community pharmacy for health-related reasons in a matter of 6 months, so community pharmacists are well-placed in England to support patients with their medication use. In January 2009 The National Institute of Health and Clinical Excellence (NICE) published a clinical guideline called: "Medicines adherence: Involving patients in decisions about prescribed medicines and supporting adherence". The report is based on a review of relevant evidence and recommendations provided on how health-care professionals (HCP) can help patients make informed decisions about their medicines and how they can support patients to

adhere to their prescribed treatment (Nice, 2009). Nice calls on the HCPs to support adherence at appropriate times during the process of prescribing, dispensing and reviewing medicine. Nice guidelines emphasise how different approaches by HCP are needed depending on whether the non-adherence is intentional (related to beliefs, concerns, side-effects) or not intentional (usually caused by practical problems). According to Clifford *et al.* (2008:41), the underlying causes of these two types of non-adherence are very different.

A White Paper from the Department of Health in England sets out an innovative agenda for improving patient care by building on the existing strengths of community pharmacies to deliver further improvements in pharmacy services, e.g. as support with medication adherence (NCCPC, 2009:1).

According to M4M (2009) an initiative launched in 2009 called Motivation for Medicines Adherence Services from an organisation called NPC Plus in England is an example of how pharmacists can deliver and be reimbursed for these services in practice.

National policies and guidelines in England are conducive to an increasing role for community pharmacists to support patients with medication adherence (Clifford *et al.*, 2010:77). Many pharmacy schools include the issue of adherence in their undergraduate-graduate and post-graduate courses. Research in this area has tested the effectiveness of pharmacists providing adherence support in the form of compliance aids, education, and involvement in discharge planning and tailored interventions.

Although the risk factors for many of the most prevalent diseases today are known, as well as the behaviours that need to be changed in order to improve patient outcomes, the challenge remains in getting patients to

- take their medications as prescribed and
- to make necessary life-style changes to reduce the health risks.

Since the two above-mentioned actions require patients to modify their current behavioural patterns the Health-care Practitioner relies extensively on behavioural psychological models (CPC Healthcare Communications, 2002b:2).

Several terms are used in the literature by several authors when reporting on the use of medicines by the patients and the subsequent “incorrect” use thereof. Terms such as “compliance”, “adherence”, “persistence” and “concordance” are being used and there still seems to be confusion between these terms in the literature according to Bajramovic *et al.* (2004:222). As a

result, the use of the terms indicating the misusing or non-using of medicine may also create confusion, e.g. non-compliance, non-adherence, etc. It is therefore imperative to define the above-mentioned terms and highlight the terms the researcher will use.

Huston (2015:721) stated in an editorial that health care stakeholders in the USA are increasingly interested in the topic of patient medication adherence. In many projects and trials pharmacists have shown that they can provide effective medication adherence services such as providing dose administration aids, simplifying or synchronising medication regimes, exploring barriers to adherence using validated tools or helping patient's link medication taking to daily activities.

1.3 Defining adherence, compliance and concordance.

The definitions of adherence, compliance and concordance will be assessed.

1.3.1 Adherence

Despite four decades of adherence research, there is still no uniformity in the terminology used to describe the deviation from treatment regimens as prescribed. Vrijens *et al.* (2012:691) completed a systematic literature review to investigate the interchangeable use of the different terminologies. It is stated that a number of terms are used to define different aspects of the patient seeking medical attention, receiving a prescription and taking medicines appropriately. These terms are all used interchangeably. Adherence implies that people freely choose to undertake behavioural plans and have some input and collaborative involvement in developing and adjusting plans (Bajramovic *et al.*, 2004:222). Christensen (2004:3) suggested the following working definition of adherence: "patient adherence reflects the extent to which a person's actions or behaviour coincides with advice or instruction from a health care provider intended to prevent, monitor, or ameliorate a disorder".

Adherence according to the definition of the WHO (2003:17) is "the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider". A similar definition of adherence is suggested according to Horne *et al.* (2005:12) as "the extent to which the patient's behaviour matches agreed recommendations from the prescriber." Most of the various definitions that are proposed, are derivations from the original definition of Sackett and Haynes. The original definition is: "Compliance is the extent to which the patient's behaviour (in terms of taking medicines, following diets or executing other life style changes) coincides with the clinical prescription" (Sackett & Haynes, 1976:1).

1.3.2 Compliance

Compliance is defined by Horne *et al.* (2005:12) as “The extent to which the patient’s behaviour matches the prescriber’s recommendations”. It implies thus a lack of patient involvement in the recommendations of the prescriber.

Cognet and Adam (2010:5) prefer the term “compliance” and not “adherence” because it translates better the term used in France which is “observance”. “Adherence” in English refers to the term “adhesion” in French and the term is not used in the French Health Sector.

Compliance connotes a passive role for individual patients who then follow advice largely without questioning. It describes the extent to which an individual’s behaviour coincides with medical or health advice. The main controversy according to Vrijens *et al.* (2012:700) regarding terminology is between the original term introduced namely ‘*patient compliance*’ and the increasingly used term ‘medication adherence’. In the view of some of the researchers is “patient compliance” synonymous with medication adherence. There exists unfortunately a widely perceived, negative connotation of ‘(non-) compliance’, and its multiple uses (e.g. compliance with drug regulations, compliance with good clinical practice, compliance with good manufacturing practice, etc.) in many different medical and peri-medical contexts, and the researchers are of the meaning that the use of the term compliance will become absolute over time.

1.3.3 Concordance

Concordance is the most recent development and denotes a more cooperative approach to health-care decisions. It is an agreement or partnership between the patient and the prescriber or health care provider, including pharmacists, about obtaining the best use of treatment that is compatible with what a patient desires and is capable of achieving (Bajramovic *et al.*, 2004:222).

The researcher used the term “adherence” as well as “medication adherence”. Adherence or medication adherence implies that the patient has a say in the decisions of his/her treatment in general or specifically medicine related treatment and can freely choose to undertake behavioural change programmes as the patient has some collaborative involvement in the treatment plans. Compliance on the other hand projects a passive role for the individual patient who then follows advice largely without questioning.

In the next section the problem statement is presented.

1.4 Problem statement

In the following section background information regarding the problem statement is presented.

1.4.1 Background

In the South African health-care system the underlying philosophy of the pharmacy profession spells it out that pharmacists are committed to fulfil the health-care needs of South Africa and its people by being, *inter alia*, providers of pharmaceutical care by taking responsibility for the therapeutic outcomes of therapy and by being actively involved in the design, implementation and monitoring of an effective pharmaceutical service (SAPC, 2010:2). The scope of practice of the pharmacy professions has been prescribed in terms of Section 35A of the Pharmacy Act and includes the provision of pharmaceutical care by taking responsibility for the patient's medicine-related needs and being accountable for meeting these needs, which would include, but not be limited to, certain functions. Six functions are mentioned of which the fourth function is of importance to this research, i.e. "determining patient compliance with therapy and follow-up to ensure that the patient's medicine related needs are met" (SAPC, 2010:3).

From the above-mentioned discussion the impact and complexity of medication adherence as a universal problem is clearly to be seen. The pharmacist as part of Health-care Providers can make an important difference as the pharmacist is most likely the final person of the health-care chain that the patient interacts with before he/she returns home with an intention of action. It may be most comforting, admirable and even flattering to the pharmacist when his/her role in medication adherence according to researchers, research studies, textbooks, Pharmacy Schools of training and many more resources are spelled out to him/her. It can be concluded that patient compliance, as well as other roles, is a very important and essential part of the Scope of the South African Pharmacist and thus part of his/her responsibility as a pharmacist.

What does the pharmacist have to say about all of these argumentations and what is the role he/she sees for himself/herself regarding medication adherence? There may even be a possibility that pharmacists do not even see themselves in any role regarding medication adherence after all because of all the other tasks and responsibilities that the pharmacists have to attend to!

1.4.2 Problem statement

The following problem statement was formulated based on the foregoing discussion:

What are the perceptual systems of pharmacists regarding their role in medication adherence in South Africa?

The researcher will report on research findings internationally as well as research findings within the South African context.

1.5 Research questions

The following research questions are formulated based on the foregoing discussion:

The research questions were grouped together of which the first group is based on the understanding of medication adherence globally from a literature study:

1.5.1 Research questions: Group 1

- What is medication adherence?
- What are the facets relating to medication adherence?
- What are the definitions of the related terms to medication adherence as well as non-adherence?
- What are the implications of non-adherence?
- What is the role of the pharmacist as care-giver in medication adherence?

1.5.2 Research questions: Group 2

The second group of research questions was based on the understanding of the phenomenon of the role of the pharmacist in medication adherence in the South African context.

- What are the components of the pharmacists' perceptual systems regarding their role in medication adherence in a South African context?
- How do the above-mentioned components relate to each other in a perceptual system?

In the following section the research aim and objectives are discussed

1.6 Research aim and research objectives

1.6.1 The research aim

To explore and develop a mind map of pharmacists' perceptions regarding their role in medication adherence.

The research objectives include general and specific research objectives.

1.6.2 General research objective

The general research objective of this study was to use the Interactive Qualitative Analysis (IQA) approach to construct and describe the pharmacists' cognitive mind map regarding the perceptual systems of their role in South Africa towards medication adherence of patients.

A mind map or a Systems Influence Diagram (SID) is the conceptual map which is a systems representation of how a group understands a particular phenomenon that consists of categories of meaning called affinities and the perceived relationships between the affinities according to Northcutt and McCoy, (2004:81).

1.6.3 Specific research objectives

The specific research objectives of this study were divided into two parts.

1.6.3.1 Part 1: Literature study

The specific research objectives of the literature study were as follows:

- To conceptualise and contextualise medication adherence, medicine and non-adherence and related terms;
- To describe and clarify the role of the pharmacist in medication adherence within the South African Health-care system.

1.6.3.2 Part 2: Empirical study

The specific research objectives of the empirical study were as follows (Northcutt & McCoy, 2004:66):

- To determine the components of the pharmacists' perceptual system regarding their role in medication adherence in South Africa; and
- to determine the relation between the above-mentioned components in a perceptual system.

In the following section the development of the research study to answer the problem statement and the research questions is discussed.

1.7 Research study

The research study consisted of **two phases** in conjunction with the specific objectives, viz. a literature study and an empirical investigation.

- Phase 1: Literature study
- Phase 2: Interactive Qualitative Analysis (IQA)

1.7.1 PHASE 1 of the research study: Literature study

The literature study was the first phase of the research study in conjunction with Part 1 of the specific objectives of the study.

A study of the literature was conducted to enable the researcher to reach the following objectives:

- To conceptualise and contextualise medication adherence, medicine and non-adherence and related terms;
- To describe and clarify the role of the pharmacist in medication adherence within the South Africa Health-care system.

Because the IQA is a theory-generating study, an additional literature review was conducted after the study had been completed. (Northcutt & McCoy, 2004:299).

The second phase of the research study is discussed in the following section

1.7.2 PHASE 2 of the research study: Interactive Qualitative Analysis (IQA)

Phase 2 of the research study encompassed the empirical study as the second specific objective of this study. The IQA was selected research methodology and is discussed in the following section.

1.7.2.1 The IQA as selected research tool and methodology

The researcher made use of the Interactive Qualitative Analysis method (IQA). The purpose of an IQA study was to identify elements of meaning and to describe the perceived cause-and-effect relationship among them creating a system called a mind-map (Northcutt & McCoy, 2004:199). “The product of an IQA study is a visual representation of a phenomenon [*the role of pharmacists in medication adherence*] prepared according to rigorous and replicable rules of achieving complexity, simplicity, comprehensiveness and interpretably” (Northcutt & McCoy, 2004:41). IQA is a qualitative data-gathering and analysis process that depends on facilitated group processes and will yield comparable results to other settings (Northcutt & McCoy, 2004:43, 50-51). The IQA approach implies that through the systemic facilitation of group processes and by means of the systematic representation of the discourse created by the group, the collection and interpretation

of qualitative data can be approached from a systems point of view (Northcutt & McCoy, 2004:56). The purpose of the IQA study is to allow a group to create its own “mind map” of the phenomenon.

1.7.2.2 The IQA and data collection

The researcher used the IQA method to collect data. IQA data were collected during three processes namely Focus groups, Individual interviews and a Web-based questionnaire

1.7.2.2.1 Focus groups

Group processes (focus groups) were used to collect data and it presumes the researcher can gain insight as into a socially constructed reality as reported by members of the group while the use of follow-up interviews is designed to both elaborate and contrast individual meanings to those of the group (Northcutt & McCoy, 2004:16). The focus group identified the components (affinities) of the pharmacists’ perceptual system regarding their role in medication adherence in South Africa through a process of inductive coding as well as axial coding (Northcutt & McCoy, 2004:47). Thus the focus group generated the affinities that were used in the IQA semi-structured interview.

A group of 13 pharmacists took part in the focus group. They were selected according to certain criteria from a constituency representing pharmacists from as many as possible parts of the pharmaceutical sector in South Africa. A more detailed discussion of the specific constituency and the selections of participants of the focus group will follow in Chapter 3.

1.7.2.2.2 Individual interview

The IQA interview protocol is designed to achieve objectives each which relate directly to the research questions of the study (Northcutt & McCoy, 2015:20). The interview is used to elicit descriptions of affinities and to identify and elicit description of the relationships among affinities. The IQA interview served to add richness and depth descriptions of the meaning of affinities that are not possible in a focus group alone. The interview protocol guides the researcher in the interview process to achieve several critical purposes with the IQA interviews such as:

- To provide data representing the respondents’ experience of the phenomenon;
- To help the researcher code the impact and influences of these affinities in order to create a collective Systems Influence Diagram (SID); and
- To provide data representing the groups’ collective Systems Influence diagram (SID) or mind map.

The interview can be divided into two stages namely the Open-ended axial interview and the Structured theoretical interview (Northcutt & McCoy, 2015:20).

- Open-ended axial interview

In the first part of the interview, the researcher only addressed the affinity names himself and asked the interviewee “What does the affinity mean to you? Tell me about your experience with the affinity”.

- Structured theoretical interview

The second part of the interview is more structured where the purpose is to explore the perceived relationships among the affinities and to record the relationships amongst the affinities in such a way that it facilitates efficient analysis thereof. The Affinity Relationship Table (ART) is the basis of this part of the interview where the interviewees were presented with the table and asked whether they believed there was a relationship between each affinity and the rest and to explain why they believed so.

The final result of the Interview phase is the transcribing of the individual recordings of each respondent.

A total of 14 pharmacists were participants in the interview phase. The pharmacists were selected from the specific constituency (group of respondents) that includes all pharmacists from all the Pharmaceutical sectors in South Africa. Some of the pharmacists were part of the focus group mentioned previously presenting as many of the pharmaceutical sectors as possible within the selection criteria. More detail regarding the pharmacists and their selection will be presented in Chapter 3.

1.7.2.2.3 Web-based questionnaire

A web-based questionnaire was developed with the purpose to capture the responses of South Africa pharmacists regarding their perceived relationships of the affinities as generated by the Focus group. The respondents were presented with a background of the study as well as a definition and description of each affinity. The same information regarding the affinities was presented to the respondent of the questionnaire. The respondents were presented with possible relationships between affinities and were asked if they believed there were relationships between the affinities. The respondents indicated on the web-based questionnaire the direction of the relationship and were asked to motivate their choice of direction explain why they believed so.

The web-based questionnaire was sent to all the pharmacists in South Africa who were registered with the South African Pharmacy Council (SAPC).

1.7.2.3 Data analysis

The relationship data (theoretical questions) of both the web-based questionnaire and the individual interviews were combined and produced a single set of data that was used.

According to Human-Vogel and Van Petegem (2008:456) an audit trail is created with the IQA method where each step and decision in the analysis accounted for. The participants from a constituency conducted their own theoretical coding of the components of the phenomenon (Northcutt & McCoy, 2004:87). Through the use of protocols, transcripts were coded and systems were drawn. The constituency told by the aggregating axial codes a story of the group as a whole. The system is built one relationship at a time by aggregating theoretical codes to tell the story of the group as whole. The results were an Axial Write-up, Theoretical Write-up and the presentation of the System Influence Diagram or SID. The flow of the data analysis will be discussed in detail in Chapter 3 and can be summarised as follows:

- System elements (describe each affinity);
- Composite affinity descriptions (affinity write-up);
- Describe each affinity from the viewpoint of the group as a whole;
- Systems relationships (describe each relationship);
- Draw the cluttered SID one affinity at a time while describing the relationships;
- Systems influence diagram (SID);
- Present the uncluttered SID by means of a series of strict protocols.

1.7.2.4 Reliability and validity of the IAQ as research instrument

The data analysis is as far as possible uncontaminated by any subjective interpretation of the researcher, so that the results represent the “pharmacists” (constituency) mental model and not a mental model based on the researcher’s interpretation of the patterns in the data (Human-Vogel & Van Petegem, 2008:456). With IQA the usual issues of subjectivity and validity are less problematic because the participants code their data, not the researcher (Human-Vogel & Van Petegem, 2008:456) in contrast with thematic analysis where the researcher usually searches for

meaningful verbal data by means of induction and deduction that might render the product as being contaminated by the researcher's own worldview and assumption of the data.

The four stages of the IQA research flow with all the above-mentioned aspects incorporated in a structure, are presented in the following section

1.7.2.5 Four stages of IQA research flow

IQA research flow has in itself four distinct stages according to Northcutt and McCoy (2004:44):

1.7.2.5.1 Stage 1 of the IQA research flow: IQA Research design

It is very important for the reader to take notice that this first stage of the IQA research flow is mentioned here only because it is a structural component of the IQA research flow. This stage was the very first aspect that was initially addressed by the researcher in the conceptualization of this study.

IQA's research design provides a series of tools, e.g. to help with the articulation of the problem, to identify constituencies (focus groups) and to state a research question applicable to the problem statement. A graphical representation of the IQA research design can be seen in Figure 3.3 in Chapter 3. The following process of recursion is used and each step is addressed repeatedly until the researcher is satisfied with the answers to the questions that have been raised (Northcutt & McCoy, 2004:61):

- Problem statement to describe the purpose of the study
- Identifying potential constituencies (potential groups of participants)
- Constituency classification according to lines of power (who can do something about the phenomenon) and distance (who has something to say about the phenomenon). According to Northcutt and McCoy (2004:66) reality or meaning is socially constructed and they add that two important factors of social construction are firstly the extent to which a constituency directly experiences the phenomenon (*distance*) and secondly the extent to which each constituency has *power* over the phenomenon.
- Identifying issue statements that could be asked of each group that would cast some light on the problem.
- Identifying comparisons between different constituencies.
- Identifying research questions.

1.7.2.5.2 Stage 2 of the IQA process: IQA Focus groups

It is recommended by Northcutt and McCoy (2004:87) that a typical IQA focus group should include not fewer than 12 members who have the following characteristics:

- They are information rich, possessing knowledge of and experience with the issue;
- They have the ability to reflect on the question and to transfer those thoughts into words;
- They have the time and inclination to participate in the study;
- They are homogenous with respect to important dimensions of distance and power;
- They can respect and practise group dynamics, i.e. they are neither overpowering nor too timid to speak (Northcutt & McCoy, 2004:90).

Focus groups are then used to identify components (affinities) of a system that will present the specific group's experience with the phenomenon. Human-Vogel and Van Petegem (2008:458) stated that it is the purpose of an IQA to determine in which way a focus group of between 10 and 25 participants would represent their experiences in a system of cause and effect.

1.7.2.5.3 Stage 3 of the IQA process: Collection of data by means of Semi structured Interviews and a Web-based questionnaire

- Semi-structured Interviews

The components (affinities) produced during the focus group are then used to develop a protocol for the semi-structured interviews with members of the focus group as well as other pharmacists to further explore the meaning of the components and their mind map. The interview questions are designed and based on the affinities and sub-affinities developed by members of the focus group. The interview transcript is coded both axially and theoretically (Northcutt & McCoy, 2004:49). The Individual Interview Axial Code Table (ACT) is the primary documentation for all the words or utterances that illustrate **the range of meaning** of each affinity for each respondent. The Theoretical Code Affinity Relations Table (TCT) is the primary documentation for all utterances that **illustrate the manner in which the affinities** are related for each respondent. The composite IRD and composite SID are created for the group by using the Combined Interview Theoretical Code Frequency Table as well as the Pareto Protocol.

- Web-based questionnaire

The respondents of the web-based questionnaire were presented with the same information as the interviewees of the individual interviews, regarding the background of the study as well as a definition and description of each affinity. The respondents were presented with possible relationships between affinities and were asked if they believed there were relationships between the affinities. The respondents then indicated on the web-based questionnaire the direction of the relationship and were asked to explain why they believed so. The relationships as well as the “utterances” or reasons for the direction of the influence between affinities of the respondents were recorded in such a way that it facilitated efficient analysis thereof. The theoretical coding data and the relationship data were integrated with the same data from the interview phase to provide a larger set of data for a more robust system.

1.7.2.5.4 Stage 4 of the IQA process: Reporting and discussion

The primary result of an IQA study is a picture of the system and the process that produces the system and picture, and is designed to aid in the reporting process. The typical IQA report accomplishes two goals (Northcutt & McCoy, 2004:50) - these are names and a description of the affinities or elements of the system and it explains relationships amongst elements of the system as well as the system dynamics.

- Reporting on affinities (elements):

Each affinity is identified and discussed in detail. The affinities are described largely in the participants’ own words.

- Reporting on relationships:

The relationships between the affinities are described largely in the own words of the participants as well. The SID is presented and readers are given a “tour” through the system in which the relative influence of each affinity on others is explained again in the own words of the participants.

- Reporting on “What is and What if”

The mind map or SID of the group is a system or a model according to Northcutt and McCoy (2004:51) and is designed to be “exercised”. Systems may be exercised in three basic ways:

- The model may predict the ultimate state of the outcome affinities given known states of its antecedents affinities;

- The model may predict the ultimate state of the driver affinities given the known state of the subsequent affinities; and
- The model may describe the effect of the extra-systemic influences or those forces not named or accounted for in the system.

Reporting of the results will also be in the format of an article to be submitted for publication as well as poster presentations of results internationally as well as nationally at conferences.

Conclusions and recommendations are discussed in the next section.

1.8 Conclusions and recommendations

In this step conclusions based on this research will be formulated as proof of the successful completion of the research objectives. Shortcomings will be presented as well as recommendations for further research.

The division of chapters is discussed in the following section.

1.9 Division of chapters

The chapters will be divided as follows:

1.9.1 Chapter 1

In Chapter 1 the background, rationale of the study, research objectives and outline of the study were presented.

1.9.2 Chapter 2 Literature study

The literature study focussed on medication adherence and non-adherence, and the role of the pharmacists in this context. The background, definitions, examples, impact, consequences, efforts to change medication non-adherence, pharmacists' role in medication non-adherence as well as other topics were discussed.

1.9.3 Chapter 3: Methodology

In this chapter the reader is presented with the IQA research method followed in this study as prescribed by Northcutt and McCoy in their textbook from 2004: *Interactive Qualitative Analysis: A systems method for qualitative research*. The two authors developed the IQA methodology and can be considered as the founders of the IQA methodology which in every aspect thereof is described in detail in the above-mentioned book. The book was used as a guideline for the

methodology of this study. All other publications refer back to this original book as no other sources of the IQA methodology are yet available. The methodology is described in more detail in Chapter 3 as well as Annexure E.

1.9.4 Chapter 4: Results and discussion of the system's elements and the system's relationships.

The results of the systems elements (affinities) relationships will be discussed as an audit trail for later argumentation. By presenting only the data and facts free from the researcher's interpretation and opinion as far as possible adds to the credibility of the data. It allows the readers to draw their own conclusions free from researcher bias (Northcutt & McCoy, 2004:300). The results of the systems relationships will be described in the words of the respondents and are presented as an audit trail for later argumentation. By presenting only the data and facts free from the researcher's interpretation and opinion as far as possible, adds to the credibility of the data. It allows the readers to draw their own conclusions free from researcher bias (Northcutt & McCoy, 2004:300).

1.9.5 Chapter 5: Analysis, Interpretation and Implications

The implications of the study presented in this chapter provided a forum for the researcher to analyse and interpret the data as well as drawing conclusions based on the data. The researcher described the composite system, highlighted feedback loops, and "exercised" the model.

The researcher returned to the literature with the section named Predictions, Interventions and Practical implications presenting solutions to problems identified, other research results, theories of thought and other sources to support and inform the findings (Northcutt & McCoy, 2004:302). The chapter ended with limitations of the study and recommendations for further studies and conclusions to the study.

Other factors that need to be taken into consideration are discussed in the following section.

1.9.6 Ethical considerations

1.9.6.1 Ethical approval

An ethical application has been submitted to the Research Ethics Committee of the Faculty of Health Sciences of the Potchefstroom Campus of the North-West University. The study has been approved with the following number: **NWU-00057-12-R5**

Other aspects regarding ethical considerations such as informed consent will be discussed in the Chapter 3 Methodology.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

In the previous Chapter the Introduction to this IQA study was presented with the proposal to this study as the main theme. A basic literature study was undertaken for the purposes of the proposal but here follows a more comprehensive literature study to gain more insight in the phenomenon that was described in the Chapter 1. It is important to note that the IQA is a theory-generating study so an additional literature review will be found in Chapter 5 of this study. The literature study in Chapter 5 will focus specifically on the results of the empirical study. The literature needs to be reviewed again in order to provide ancillary information and evidence from the literature regarding the new information that was generated by the IQA methodology. Affinities will be generated, discussed, related to each other and eventually a mind map or System Influence Diagram (SID) will be built that represents the perceptual system of the pharmacists' role in medication adherence. The new information needs to be discussed and corroborated from the literature.

The literature review that follows Chapter 1 was done to provide a general background to the reader concerning aspects related to medication adherence. Medication adherence and other terminology will be defined and explained from the literature, the general and cost implications of medical non-adherence will also be discussed. Factors affecting medication adherence resulting in medicating non-adherence as well as theoretical models will be investigated. Because the pharmacist is at the helm of this study, the role of the pharmacist regarding medication adherence will be investigated from the literature. Finally the health care system in South Africa with special reference to the different work places of pharmacists, the role of the South African Pharmacy Council in the practice of pharmacists in South Africa and the concept of pharmaceutical care will be presented as background to the reader.

In the following section some background information of medication adherence is presented.

2.2 The importance of medication adherence

The World Health Organization (WHO) referred to non-adherence as a 'worldwide problem of striking magnitude' and improving adherence to medication has become a priority to health care researchers and policy makers (WHO, 2003:xiii). Research on patients' adherence or compliance has grown rapidly over the past 60 years as chronic diseases became more prevalent and treatment more dependent on the patient's self-management. Rudd was, for example, one of the first researchers in 1979 who were searching for 'the gold standard of compliance measurement'

(DiMatteo, 2004:207). In 2004 there was still not one adherence measure against which to calibrate others and this make validation impossible.

Vrijens *et al.* (2012:691) state that adherence and non-adherence to medication have been studied extensively in the past decade. Researchers have been searching for the factor(s) that may regulate medication adherence. This search was and still is driven by the knowledge that medication non-adherence has substantial negative effects on health-care delivery, health-care costs, quality of life of patients (Afolabi *et al.*, 2009:1), evidence-based cut-off points for adherence and hence therapeutic success (Wu *et al.*, 2009: 290) as well as on the treatment of future patients (Paterson *et al.*, 2000:28).

Between a third and a half of all medicines prescribed for long term conditions are not taken as recommended resulting in personal and economic cost to patients, health-care system and society (Nice, 2009:4). Non-adherence may limit the benefits of medicine and result in the lack of improvement and deterioration of health of the patient. The economic costs are not only that of the wasted medicines but also the knock-on effect on costs from an increased demand for health care. Non-adherence is not a patient's only problem as it represents a fundamental limitation in the delivery of health-care. Addressing non-adherence is not to get patients to take more medicines *per se*, but rather to start with an exploration of the patient's perspectives on medicines and reasons why they may not want to or are unable to use the medicines (Nice, 2009:4). Medicines are used as a general term to refer to prescribed medicines that are self-administered and include tablets, syrups, ointments, eye-drops and suppositories (Nice, 2009:4). To understand adherence we need to consider the perceptual factors (beliefs and preferences) that influence motivation in order to start and continue treatment as well as the practical factors influencing patients' ability to adhere to the agreed treatment.

Regarding adherence or non-adherence there are numerous studies and reports completed and presented by researchers, private companies and governmental organisations to several audiences across the world (Mansoor *et al.*, 2015:769, Nieuwlaat *et al.*, 2014:19, Ostini, R. & Kairuz, T. 2013, Raebel *et al.*, 2013:24, Roebuck *et al.*, 2011, Vrijens *et al.*, 2012, WHO, 2003, WHO, 2008).

Collectively they all have the same goal to eventually provide information but also to focus the attention of the specific country and the world on the 'worldwide problem of striking magnitude' of medication adherence. It is a pity that all the studies focus on the negative component of medication adherence that is, medication non-adherence. It is understandable because of the impact and cost thereof but we must still keep in mind that there are millions of patients that do adhere to their medication. We must not instil in them such a negativity because of the rest of the

patients' medication non-adherence that they also default to non-adherence. The question may be asked whether the default of the use of medication by patients' needs to be medication non-adherence rather than medication adherence as it has a more positive feel to it. In this chapter the exact terminology used in the original documentation was duplicated especially with the use of adherence and compliance by the authors of the documentation.

Now that the reader has some background information regarding medication adherence, the terminologies that already have been used and other terms related will be defined and described in the following section. The focus of this research is the pharmacists' perception of their role in medication adherence and thus the focus of this chapter will be the viewpoint of the pharmacist.

2.3 Terminology related to medication adherence

In the following section various definitions and descriptions of some terms associated with the concept of medication adherence will be discussed.

2.3.1 Background

This study is focussed on the 'perceptions of pharmacists regarding their role in medication adherence'. The focus seems to be clear and well understood by everybody, but is it? One can begin by asking what a 'pharmacist' is or one can ask what 'medication adherence' is. Everything is not always as crystal clear as there are sometimes different interpretations of words and concepts in pharmacy practice research. Definitions do matter because concepts are shaped by perceptions of the audience and these perceptions, in turn, are shaped as a result of education, language and cultural differences and they are 'time-dependent and in the case of pharmacy, health system dependent' (Foppe van Mil & Henman, 2016:710). The most important terms will be defined in the following section.

Several terms are used in the literature when reporting on the use of medicines by patients and the subsequent 'incorrect' use thereof. Terms such as 'compliance', 'adherence', 'persistence' and 'concordance' are being used, sometimes incorrectly as synonyms of each other (Bajramovic *et al.*, 2004:222). The terms used to indicate the misusing or non-using of medicine will also create confusion, e.g. non-compliance, non-adherence, etc. It is therefore imperative to define the above-mentioned terms and highlight and clarify the terms that will be used by the researcher.

Despite four decades of adherence research, there is still no uniformity in the terminology used to describe the deviation from prescribed treatment regimens. A number of terms are used to define different aspects of the patient seeking medical attention, receiving a prescription and taking medicines appropriately. These terms are all used interchangeably. The terms are

compliance, concordance, persistence and adherence (Vrijens *et al.*, 2012:692). A short history of the development of the terminology and the changes thereof for describing deviations by patients from the prescribed dosing regimens by health care workers are described by Vrijens *et al.* (2012:695). The first known incident, according to Vrijens *et al.* (2012:695) of human non-compliance was when Eve ate the apple in the Garden of Eden! The term 'compliance' was introduced into medicine in 1975. A shift from 'compliance' to 'adherence' was introduced where a refocusing from obedience to cooperation took place. Another term, namely 'concordance' was introduced in 1995 and in 2001 the term 'persistence' was introduced. The WHO (World Health Organization) introduced the definition of 'adherence' in 2003 and in 2009 the term 'medication adherence' became known.

2.3.2 Definitions and descriptions

The definitions and descriptions of adherence, compliance, concordance, persistence, adherence and self-management, adherence to medication, management of adherence and medication management will now be presented.

2.3.2.1 Adherence

Adherence implies that people freely choose to undertake behavioural plans and have some input and collaborative involvement in developing and adjusting plans (Bajramovic *et al.*, 2004:222) or as Christensen (2004:3) suggested, '*patient adherence reflects the extent to which a person's actions or behaviour coincides with advice or instruction from a health care provider intended to prevent, monitor, or ameliorate a disorder*'. Adherence according to the definition of the WHO (2003:17) is '*the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider*'. A similar definition of adherence is suggested as '*the extent to which the patient's behaviour matches agreed recommendations from the prescriber*' (Horne *et al.*, 2005:12). The researcher prefers the use of the definition of *adherence* according to the WHO. Most of the various definitions that are proposed, are derivations from the original definition of Sackett and Haynes. The original definition is: '*Compliance is the extent to which the patient's behaviour (in terms of taking medicines, following diets or executing other life style changes) coincides with the clinical prescription*' (Sackett & Haynes, 1976:1).

2.3.2.2 Compliance

Compliance is defined as '*the extent to which the patient's behaviour matches the prescriber's recommendations*' (Horne *et al.*, 2005:12). It thus implies a lack of patient involvement in the recommendations of the prescriber.

Medication compliance is defined as ‘the extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen’ (Cramer *et al.*, 2008:46). Cramer makes use of the term ‘adherence’ as a synonym for compliance.

Cognet and Adam (2010:5) prefer the term ‘compliance’ and not ‘adherence’ because it translates the term used in French, ‘observance’, better. ‘Adherence’ in English refers to the term ‘adhesion’ in French and the term is not used in the French health sector.

The main controversy regarding terminology is between the original term introduced namely ‘patient compliance’ and the increasingly used term ‘medication adherence’ (Vrijens *et al.*, 2012:700). In the view of some of the researchers, ‘patient compliance’ is synonymous with medication adherence. There is unfortunately a widely perceived, negative connotation of ‘(non-) compliance’, and its multiple uses (e.g. compliance with drug regulations, compliance with good clinical practice, compliance with good manufacturing practice, etc.) in many different medical and peri-medical contexts, and the use of the term compliance may become obsolete over time.

2.3.2.3 Concordance

Concordance depicts a more cooperative approach to health-care decisions. It is an agreement or partnership between the patient and the prescriber, including pharmacists, about obtaining the best use of treatment that is compatible with what a patient desires and is capable of achieving (Bajramovic *et al.*, 2004:222). Concordance and ‘therapeutic alliance’ are elements of the management of the adherence process (Vrijens *et al.*, 2012:700). Concordance is predominantly used in the United Kingdom (UK) (Horne *et al.*, 2005:12).

2.3.2.4 Persistence

Medication persistence is defined as ‘the duration of time from initiation to discontinuation of therapy’ (Cramer *et al.*, 2008:46). Persistence is also defined as ‘the length of time between initiation and the last dose, which immediately precedes discontinuation’ (Vrijens *et al.*, 2012:696) or as ‘the time over which a patient continues treatment or continues the refill the prescription, from starting to stopping therapy’ (Raebel *et al.* (2013:14). Accordingly medication persistence implies that ‘the patient must have exhibited at least primary adherence because persistence over time cannot be measured unless the patient has received at least the first dispensing’ (Raebel *et al.*, 2013:15). The obverse of persistence is non-persistence.

2.3.2.5 Adherence and self-management

The definitions conceptualize adherence as an outcome or a mediator of the outcomes of the disease because adherence essentially refers to a quantification of the self-management

behaviours of the patient (Sackett & Haynes, 1976:1). Self-management as ‘the interaction of health behaviours and related processes that patients and families engage in to care for a chronic disease’ (Greenley *et al.*, 2013:1545). The patient’s self-management behaviour results in the extent to which the patient is adherent and which may have implications for clinical and disease outcomes. Effective self-management is necessary to maximise treatment efficacy and clinical outcomes but it is a complex behaviour that is poorly understood because of many factors such as poor defining and a multitude of factors that influence patient self-management (Modi *et al.*, 2011:473).

2.3.2.6 Adherence to medication

Adherence to medication is a process by which patients take their medications as prescribed (Vrijens *et al.*, 2012:696): The process has three components:

- *Initiation* starts when the patient takes the first dose of the prescribed medicine of the treatment.
- The next step *is implementation* that is defined as ‘... the extent to which a patient’s actual dosing corresponds with the prescribed dosage regimen, from initiation until the last dose is taken’.
- Thirdly, *discontinuation* ‘marks the end of therapy, when the next dose to be taken, is omitted and no more doses are taken thereafter’.

Discontinuation is also defined as ‘the failure to have medication dispensing within a defined number of days exhaustion of the total days’ supply of the previous dispensing (often includes exhaustion of any before stockpiled medication accumulated from previous dispensing)’ (Raebel *et al.*, 2013:24).

Raebel *et al.* (2013:11) coined the construct ‘Adherence connotes the degree to which the patient conforms to the medication use recommendations specified by the prescriber, e.g. frequency/interval of administration, time of day ingested, strength of the dosage’ (Raebel *et al.*, 2013:14). Adherence is therefore divided into two main categories namely primary adherence and secondary adherence. Primary adherence is ‘a discrete event that assesses whether or not the patient received the first prescription’ while in contrast secondary adherence ‘is an ongoing process that measures whether or not the patient received dispensing refills as prescribed during a defined observation period’. The inverse or converse of adherence is then non-adherence or primary non-adherence or secondary non-adherence.

The term '*Adherence to medication*' can be used interchangeably with 'medication adherence' (Vrijens *et al.*, 2012:697). The researcher prefers to use the term 'medication adherence'.

2.3.2.7 Management of adherence

The term 'Management of adherence' is defined as 'The process of monitoring and supporting patients' adherence to medications by health-care systems, providers, patients, and their social network. The objective of management of adherence is to achieve the best use, by patients, of appropriately prescribed medicines, in order to maximise the potential for benefit and minimize the risk of harm' (Vrijens *et al.*, 2012:697). The word 'providers' in the above definition can easily be substituted for 'pharmacists' for the purposes of this study.

2.3.2.8 Medication management

As some patients are taking more than one medicine, most often older patients, it is important to manage the medicine of the patient as a component of the health-care plan (Gould & Mitty, 2010:291). The main focus of the clinician (*pharmacist*) when only managing the medicine of the patient a set of behaviours and activities to increase the use of medication. In contrast, when the clinician (*pharmacist*) manages the medication of the patient with a focus on increased adherence, the main focus will be activities that will promote trust in partnership, maintain collaboration, enhance readiness, motivate and improve the patient's capability to adhere to the plan to which both parties agreed that it is implementable and as far as possible medically correct.

The occurrence of non-compliance in the compliance perspective could be seen as resistance in a 'me-versus-you' power struggle (Gould & Mitty, 2010:291). The *why* question is not asked and the patient is coerced in various ways to follow the instructions. To be able to manage medicine effectively the adherence perspective needs to be utilised and information gathered by asking why if there is a case of non-adherence.

It is important to understand that some patients will not be 100% adherent to the medicine taken and there are many possible reasons why the patient will not take medicines correctly. The difference is in the actions to solve the problem and the best action is not to blame the patient for being disobedient.

2.4 Adherence versus Compliance

Patients were firstly thought to be the source of the problem of compliance and later the role of the providers was also addressed. It is now acknowledged that a systems approach is required. As compliance is too closely associated with blame on the providers or the patients the concept of adherence is a better way of capturing the dynamic and complex change. Simplistic

approaches to improving the quality of life of people with chronic conditions are not possible (WHO, 2003:v).

A scenario where the nurse (*pharmacist*) gives an older adult patient (or any other patient) the best clinical advice about medication only to find that even though the patient said she/he would, they did not follow the directions was described (Gould & Mitty, 2010:290). The nurse (*pharmacist*) professionally experienced a lot of frustration as the patient did not listen. In following the medical model (biomedical) of health it is a one-way relationship between the provider (*pharmacist*) and the patient with the action of judgement of the patient. The provider (*pharmacist*) dictates the treatment regimen to the patient and the patient is expected to comply. Non-compliance is an act of the patient 'not doing what the patient is told' by the provider (*pharmacist*). To achieve better health outcomes for the patient it is suggested that the focus should be patient-centred and non-judgemental and not only about the clinician (Gould & Mitty, 2010:290). The move beyond the concept of compliance to the concept to adherence is recommended. It is important to note that the difference is not only one of semantics but rather a crucial difference of perspective. Adherence puts the nurse (*pharmacist*) in a partnership with the patient rather than being at odds (in conflict) with the patient from a compliance perspective. Gould and Mitty (2010:291) present a summary of differences regarding the perspectives of compliance and adherence and it is necessary to take note thereof for the purposes of this study. The perspective of compliance is ultimately clinician-centred (*pharmacist*) with clinician (*pharmacist*) dominance where any information is dictated and the goal is patient obedience. All the activities and rules are dictated to the patient and the expected behaviour of the patient is persuaded and coerced. Any resistance from the patient's side is not tolerated. In stark contrast is *adherence* perspective with a notion of patient-centeredness with clinician-patient (*pharmacist*) collaboration where the information is exchanged and the goal is patient self-mastery. All the activities are negotiated and rules are matched to the individual's lifestyle and the expected behaviour of the patient is discussed, negotiated and motivated. Any resistance from the patient's side is seen as a source of information for adaptation (Gould & Mitty, 2010:291). The adherence perspective directs the focus of the nurse (*pharmacist*) to a broader view of positive health outcomes away from a state of conflict with the patient. It frees the mind of the nurse (*pharmacist*) to try and develop overall care plans in partnership with the patient and those close to him/her.

(The author inserted the word '*pharmacist*' in italics as the discussion can also be applied to the role of the pharmacist.)

From the above discussion it can be deduced that adherence is the term that will be used throughout the study. Please note that whatever term is used by the authors of the studies and

articles and comments presented, that term will be used in quotes but as soon as the discussions commence, the term adherence will be used by this researcher

In the following section the reader is presented with the extent of medication adherence.

2.5 The magnitude and impact of medication adherence in developed countries

The study named *Adherence to Long-term Therapies* by the World Health Organization (WHO) in 2003 was a very important study of medication adherence and although 14 years old still an important source to indicate the extent of medication adherence in 2003. Adherence problems are observed in all situations where the self-administration of treatment is required regardless of the type of disease, severity of the disease and accessibility to health-care resources (WHO, 2003:11). The magnitude of and impact of poor adherence in developing countries are assumed to be even higher given the scarcity of health resources and inequities in access to health care according to WHO (2003:7). It was reported that in 2003 in developed countries the adherence amongst patients with chronic diseases was on average 50%. Patients with hypertension, for example, adhere only 43% in China, 27% in Gambia and 26% in the Seychelles.

In 2008, 81% of adults aged 65 or older took one or more prescription drugs while 29% took five or more medications on a regular basis (Qato *et al.*, 2008:2). This was the highest among men and woman aged 75 to 85 years. Overall 4% of the individuals were potentially at risk of having major drug-drug interactions as they also used over-the-counter medication and dietary supplements that their physicians were unaware of. Other research suggests that 30% to 50% of patients do not take their medicine for chronic conditions as prescribed (Horne *et al.*, 2006: 10). The costs of non-adherence among patients have proved to be a missed opportunity for treatment gain and, if their conditions worsened, a possible decline in their quality of life (Clifford *et al.*, 2010:78).

As the population of the United States is ageing, the prevalence of chronic diseases grows (Braithwaite *et al.*, 2013:3). In 2000, people aged 65 and older represented 12.4% of the American population. By 2030 this segment is expected to increase to 19%. In the USA almost 45% or approximately 133 million people live with at least one chronic disease. As the population continues to age and the prevalence of chronic diseases grows, medication adherence will be an increasingly important aspect of effective treatment.

Alarmingly, it was found that patients over-estimated their perceived level of medication adherence when survey results were compared to actual records of prescription dispensing. Patients whose actual levels of adherence were less than 25%, reported adherence levels higher than 90% (Express Scripts, 2014:554) and \$37.1 billion was spent on avoidable medical and

pharmacy expenses as a result of patients' non-adherence to medication treatment. Estimates of intentional and unintentional non-adherence in the year following an acute coronary syndrome (ACS) proved to be 20%, 54% and 53% for total adherence at two weeks, five months and 12 months and 8%, 15% and 25% for intentional adherence and 15%, 52% and 53% for unintentional non-adherence (Molloy *et al.*, 2014:432). Patients stop taking their medication in the first months following initiation of treatment when collecting medication for the first time and often without informing their provider (Nieuwlaat *et al.*, 2014:3). Many patients who continue their medication do not consistently take it as prescribed and as a result adherence averages around 50% and ranges from 0% to 100% without any evidence of substantial change in the past 50 years. Many patients who could benefit from medication do not and thus much of the public and private investment in health research and health-care is undermined. Enhancing medication adherence is a priority and would improve patient outcomes through the effect of medication as low adherence is independently associated with an increased risk of death. Sixteen percent of non-adherence is due to cost of medical schemes and 32% of people are so concerned with the price of their medicines that they take less than prescribed. Additional 15% reported non-adherence because of side effects due to cost non-adherence. Predictive modelling by Express Scripts' ScreenRx® programme predicts with a 94% accuracy non-adherence up to a year in advance. Home delivery of medicine which is paired with a programme for advanced adherence solutions increase up to 28.55% more than those who refill at retail (Express Scripts, 2015:3). Patients who use home delivery for anti-diabetics, anti-hypertensives or anti-hyperlipidaemias have a greater likelihood of being adherent than patients who fill their prescriptions at retail pharmacies (Iyengar *et al.*, 2014:851).

The impact of medication non-adherence will be highlighted for three prevalent chronic disease namely hypertension, diabetes and asthma (WHO, 2003:11).

2.5.1 The impact on hypertension

The impact of poor adherence grows as the burden of chronic diseases grows worldwide (WHO, 2003:xiii). High blood pressure increases the risk of ischaemic heart disease three to four-fold and overall cardiovascular risk by two to three-fold. Strokes are closely associated with high blood pressure as the incidence of stroke increases approximately three-fold in patients with borderline hypertension and up to eight-fold in patients with definite hypertension. Despite all the knowledge and information and effective treatments, studies have shown that in many countries less than 25% of patients treated for hypertension achieve optimum blood pressure. In the UK and USA only 7% and 30% of patients respectively had good control of blood pressure and in Venezuela only 4.5% (WHO, 2003:12). Poor adherence has been identified as the main cause of failure to control hypertension effectively.

2.5.2 The impact on diabetes

The WHO (2003:11) found that in Europe only 28% of patients treated for Type 2 Diabetes achieved the desirable glycaemic control. It is important to note that the control of diabetes is more than taking medicine as other aspects of the self-management also need to be adhered to such as self-monitoring of blood glucose, lifestyle adaptation and more. In the USA less than 2% of the adults with diabetes perform the full level of care that is needed to be done as recommended by the American Diabetes Association. Diabetes also have co morbidities, e.g. hypertension, obesity, etc. The combined health and economic burden is huge and increasing as the cost to treat 10 million Type 2 patients to treat in USA is \$29 billion. Direct cost of complications attributed to poor control of diabetes is three to four times higher than what is associated with good control.

2.5.3 The impact on asthma

Worldwide poor adherence to treatments of asthma is documented with large variations between countries. Non-adherence rates among patients with asthma range between 30% and 70% and it all depends on how the adherence is measured. The adherence rates in developed countries can be as low as 28%. In adolescents, adherence to the prescribed pulmonary medication regimen may be as low as 30% as the management of the disease is complex and needs to be self-managed (WHO, 2003:13). In the USA 54.9% of adults with asthma and 78.3% of children with asthma take too little medication or none at all. The same report mentioned that 69% of non-adherence is due to behavioural issues such as forgetfulness or procrastination. It was found in another study that diabetics over the age of 65 had an average adherence rate of 90% *inter alia* when they receive a 90-day supply of medication, used a mail-order pharmacy for at least half of the refills for a given year (Express Scripts, 2015:1).

2.5.4 Impact of most prevalent conditions in Sub-Saharan Africa and South Africa

Two of the most prevalent illnesses in the sub-Saharan Africa (SSA) region is tuberculosis (TB) and HIV/Aids.

Four-fifths of the more than five million people receiving ART treatment (2011) live in sub-Saharan Africa (SSA) that includes South Africa. Options for second-line therapy after first-line therapy failure are often limited to these patients. The long-term success of antiretroviral (ART) treatment for HIV infection is primarily determined by the level of adherence to the medication thereof. The effectiveness of the treatment enhancers such as directly observed therapy (DOT), cell phone short message services, treatment supporters, education and counselling, food supplements and different organizations of ART delivery may be effective in increasing the adherence in some of the SSA settings. Some interventions are unlikely to produce large or long-lasting effects. Other

interventions to increase adherence are only effective in some but not all settings. Further evaluations studies are needed to confirm the positive intervention effects but also determine the duration of the effect, modifying affects need to be identified and the cost-effectiveness of the interventions needs to be established (Bärnighausen *et al.*, 2011:942).

The introduction of nurse-initiated and –managed antiretroviral therapy (NiMART) in South Africa was necessitated by the shortage of pharmacists in the public health sector where nurses have taken on drug supply management and dispensing duties to support the antiretroviral therapy (ART) roll-out. Many nurses trained in NiMART do not have the knowledge to manage drug supplies and ensure drug safety (Crowley & Stellenberg, 2015:84). In a study in 20 randomly selected eligible clinics in the uMgungundlovu health district in KwaZulu Natal, a single health district in South Africa, it was found that the pharmaceutical services were inadequate such as inadequate storage space for medication, lack of security and absence of written SOPs in the Primary Health Care Clinics. The additional tasks to be performed by the nurses such as medicine stock management and dispensing may increase the burden on the nurses. Although at least one professional nurse with a dispensing licence was on site at 95% of the clinics, all the other nurses dispensed medication from their consultation rooms. Enrolled nurses and other staff members without adequate dispensing training assisted in the dispensing of the pre-packed ART medicine to the patients and the question arises if the provision of patient education and assessment of patient adherence then take place? (Crowley & Stellenberg, 2015:89).

Adherence is a crucial determinant of antiretroviral success. Questions about ART adherence are the most widely used instrument to measure adherence in the treatment programs in sub-Saharan Africa (SSA) (Chaiyachati *et al.*, 2011:167). The five simple questions commonly used in routine care in the public health sector in South Africa perform poorly in detecting patients who failed ART treatment. The study was conducted in KwaMsane primary health-care clinic with the largest number of HIV patients in the Hlabisa sub-district in KwaZulu-Natal in South Africa. As the estimates of ART adherence in SSA countries are mostly based on the responses to the questions, it may be suggested that the ART adherence in the region (including South Africa) has been over-estimated and that the understanding of ART adherence in the region is incorrect (Chaiyachati *et al.*, 2011:168).

For many households in sub-Sharan Africa, the tuberculosis (TB) treatment and related care costs were considered to be catastrophic. The TB patients and households often incurred high costs when making use of TB treatment either as part or outside the Directly Observed Therapy Short-course (DOTS) programme. Potential costs to TB patients are total cost of attending public hospitals, costs to visit the clinic, total cost for monitoring and collecting medication, cost of paying the traditional healer, the time it takes to travel and other. The patient's costs amounted to 10%

or more of their average annual incomes in the countries that were part of the study and that includes South Africa. These costs have the potential to financially strain the patients and their households leading to possible delayed care seeking and an increase in default rates of TB patients thus a decrease in adherence (Barter *et al.*, 2012:19).

The adherence of patients to chronic antidepressant medication in the private health-care environment in South Africa was found to be poor. Only 34% of the patients adhered to the treatment regime (Slabbert *et al.*, 2015:139) in a six year period from Jan 2006 to December 2011.

In the first cross-cultural assessment of a Hill-Bone Compliance to High Blood Pressure Therapy Scale conducted in an 'at-risk' population in South Africa it was indicated that low compliance (adherence) to hypertension treatment and poor blood pressure control is prevalent (Lambert *et al.*, 2006:290). The instrument was tested in the peri-urban local population living in the areas of Cape Town that were mostly Xhosa-speaking.

Blood pressure treatment status and experiences of patients in a large primary health-care clinic in the district health system of the Cape Peninsula indicated many logistic barriers for filling prescriptions. These barriers included long waiting times, insufficient medication and a perception of negative attitudes of professional staff (Steyn *et al.*, 1999:441).

2.6 Measuring medication adherence

Measuring adherence accurately is not easy according to DiMatteo *et al.* (2011:12). But it is crucial to access and regularly track the continuing adherence status of the patient. Previous adherence history might be the strongest predictor of future adherence (DiMatteo *et al.*, 2011:12). There are many methods to access adherence, for example pill counts, urine or blood assays, medication claims records, electronic monitoring devices and self-reporting by the patient. Adherence measuring can be divided into direct measures and indirect measures.

Indirect adherence measurements are Medication Possession Ratio (MPR) and Portion of Days Covered (PDC) using pharmacy claims as data source (Iuga & McGuire, 2014:36). Other indirect measures of adherence are a self-report with the patient as data source, questionnaire and pill counting with the provider as data source, a dose-counting device with the device as the data source and electronic prescribing with Pharmacy benefit manager interface as data source. With the right approach a self-report by the patient may be very accurate and valuable (DiMatteo *et al.*, 2011:12). Commonly used self-report assessment instruments online are for example, the Medication Adherence Scale and The Adherence Estimator (DiMatteo *et al.*, 2011:13). An *institution-specific standardised adherence questionnaire* as a tool to guide adherence

interventions is a quick and effective way to increase the medication adherence of therapy in outpatient clinics in contrast with available and validated adherence measurement tools that do not meet the specific needs of the clinics (Sharaya *et al.*, 2015:1).

The most important element in the process of obtaining the patient's honest and accurate self-report of their adherence is an open, honest, caring and empathic relationship with the health-care professional and one in which the patient and the clinician are partners (DiMatteo *et al.*, 2011:13). The patients should be asked in a supportive way to list the treatment regimens that were prescribed at the last visit and to describe how these have been followed (such as all the time, most of the time, etc.).

Self-monitoring in blood pressure control had been suggested as a good strategy to improve the adherence of the patient to prescribed antihypertensive regimens. Blood pressure control amongst hypertensive patients in the USA is rather poor with approximately only 30% of patients who are categorized as 'controlled' (Ogedegbe & Schoenthaler, 2006:174). The reliability and feasibility and acceptability of High Blood Pressure Monitoring by both patients and providers could be considered as a useful and 'adherence-enhancing strategy' in combination with strategies such as patient counselling (Ogedegbe & Schoenthaler, 2006:179).

There are also direct measures of adherence such as direct observation by the provider as data source and lastly drug levels and markers from the laboratory as data source. Although there is no ideal medication adherence measure (Lam & Fresco, 2015:7) it is still better to use more than a single measure especially if the results need to be as close as possible to reality. Five possible types of medication adherence measures that may be used are: direct measure, measuring involving secondary database analysis, measuring involving Electronic Medication Packaging (EMP) devices, pill count and measuring involving clinician assessments and self-report. Self-report questionnaires that are widely used are: Brief Medication Questionnaire, Hill-Bone Compliance Scale, 8 Item Morisky Medication Adherence Scale (MMAS8), Medication adherence Questionnaire (MAQ), The Self-Efficacy for Appropriate Medication User Scale (SEAMS) and lastly the Medication Adherence Report Scale. These questionnaires measure from barriers to adherence, beliefs to medication adherence and patient's medication-taking behaviour (Lam & Fresco, 2015:7)

The following section will present the reader with implications regarding the cost of medication non-adherence.

2.7 Costs implications of non-adherence

Cost implications of medication non-adherence data will be presented in this section. The author illustrates health care costs in Canada, the USA, UK and Sweden and also costs related to diabetes and asthma.

Already in 1997 non-compliance with prescribed drug therapies was a problem in Canada and has been estimated as high as 50% with an estimated seven to nine billion dollars annually in direct and indirect costs associated with non-compliance (CPC Health-care Communications, 2002a:2). It is possible that the cost of non-compliance at a rate of 50% for a medicine brand may be as much as \$4, 5 million.

In 2001 the medical care costs in the USA were over \$1.2 billion and almost 30% was paid to physicians and other health-care professionals for direct services (DiMatteo, 2004:207). A quarter of that possibly resulted in patients failing to follow the advice they were given. The researcher suggests that monetary waste associated with non-adherence in the USA could have been as high as \$300 billion a year at that stage. It is not only monetary waste because of non-adherence but additional tangible and intangible costs such as a patient suffering from dearth, frustration of provider and patient, hopelessness, incorrect scientific research, reduction in the quality of life of the patient and their health care professionals and more (DiMatteo, (2004:207). The interesting statement is made by DiMatteo, (2004:207) that sometimes non-adherence can yield a positive outcome because some medical interventions can do more harm than good. It is still important to note that every medical visit that results in non-adherence is (partly) wasted

Several studies calculated the cost of non-adherence in patients. It is to be noted that year by year, the costs increase. At a press conference in Washington in December 2006, J. Lyle Bootman, the chairman of P3C, told reporters that of the estimated 100 billion dollars spent as a result of non-adherence between 60 billion dollars and 70 billion dollars could be saved with proper adherence (Foxhall, 2007:1). Adler (2008: 1) reported that medication non-compliance (non-adherence) alone costs the USA as much as 100 billion dollars and 125 000 lives a year and that the revenue lost to the US pharmaceutical industry is as much as 30 billion dollars annually.

Many patients do not use their medicine as prescribed and that leads to greater morbidity and mortality in the case of chronic diseases in the United States. In 2010, an increase in health-care costs by over \$170 billion was reported (Fischer *et al.*, 2010:284). Iuga and McGuire (2014:35) conducted a review on the most recent developments (in 2014) in adherence research with a focus on the impact of medication adherence on health-care costs in the USA health system. The

researchers concluded that medication adherence is a significant contributor to avoidable health care costs in the USA. Improved adherence can be achieved through better education, value based insurance designs and thoughtful use of patient incentives. Better adherence and optimized spending can be reached by collaboration between patients, payers, policy makers, and providers and redesigning systems to incorporate more team based care, use lower cost medications and target the highest cost illnesses (Iuga & McGuire, 2014:42).

Fisher *et al.* (2010:284) made use of electronic prescribing that creates electronic records of the written prescription from three sources of data in Massachusetts in the USA and they measured the primary adherence rate. They defined primary adherence as 'the rate at which patients fill their new prescriptions'. A total of 195 930 e-prescriptions were captured in a 12-month period from 1 April 2004 to 31 March 2005 for a total of 75 589 patients. The overall primary adherence rate was 77.5% that means a total of 151 837 e-prescription were filled. A primary non-adherence rate of 28.3% was calculated by Fischer *et al.* (2010:287). The researchers recorded a higher primary adherence amongst primary care specialists (internal medicine, primary care and paediatrics) than among other specialists. Antimicrobial prescriptions were the least likely to be filled. Medications for chronic conditions such as hypertension, diabetes and hyperlipidaemia were less likely to be filled when the medications were newly-prescribed, according to Fischer *et al.* (2010:286). The researchers concluded that a strategy to improve medication use will lead to the health-care providers missing the potentially large number of patients who received a prescription but never filled the prescription and thus never initiated therapy. But the patients who have filled their prescription must be supported to enhance their persistence and maintain their therapy. Some more research is suggested to develop interventions to encourage the patients to initiate medication therapy when prescribed and to adhere to the full course, especially for chronic medicine (Fischer, *et al.*, 2010:289).

Non-adherence to appropriately described medicines is a global health problem and of major relevance to the National Health Service (NHS) of UK. It prevents the patients from gaining access to the best treatment. Horne *et al.* (2005:1) conducted a review report for the National Coordinating Centre for National Health Service (NHS) service delivery and organisational Research and Development of the United Kingdom. According to Horne *et al.* (2005:11) there were a total of 686 million National Health Service prescriptions processed in 2004 at a cost of eight billion pounds but an estimate indicates that between 30 to 50% of the prescribed medicines were not taken as recommended. Costs also arise from the perspective of the health-care system. The cost of unused or unwanted medications exceeds 100 million pounds (GBP) annually (Department of Health, 2008:31) and the increased likelihood of hospitalisations and complications as a result of non-adherence can also increase costs.

In 2016 a publication by a leading adherence packaging company regarding the true cost of medication non-adherence in the United Kingdom stated that the number of prescription items dispensed by pharmacists in the UK is staggering. The numbers are one billion items a year, three million items a day and just over 2000 items every single minute (Hagan 2016:2). The problem of non-adherence is that it is draining the system of 500 million pounds a year and this 'haemorrhaging' of cash should be in theory almost entirely preventable. The company carried out a patient survey and the report suggested all the key factors that drive the large-scale waste in prescription medicines according to Randal Lipps. The factors range from patients simply forgetting to take their medicine or having concerns regarding the side effects to the lack of proper communication by health-care staff and *pharmacists* (included by author) and a failure to explain how drugs work!

A model of the drug acquisition related to non-adherence to drug therapy for the entire Swedish population was constructed (Hovstadius & Petersson, 2011:326). The acquisitions cost related to non-adherence totalled 1 billion Euro or 40.2% of the total drug acquisition cost. It was concluded that drug acquisition costs related to non-adherence represent a substantial proportion of the economic resources in the health-care sector in Sweden. A low rate of primary non-adherence combined with a high rate of secondary non-adherence contributes to a large degree of unnecessary medical spending.

Salas *et al.* (2009:1) researched the health-care cost associated with the non-adherence regarding the treatments of diabetes. They found that the association between medication adherence/non-adherence and health care costs do exist but is limited and of poor quality because of various factors such as important methodological differences making comparisons difficult. More research is needed to validate the measures of medication adherence. Already in 2003 the problem with children and adolescents with asthma was shown as that it is very expensive and in the USA the costs of medical treatment for children mean the families of the children will spent between 5.5 and 14% of family income in USA and in India the percentage is as high as 9% (WHO, 2003:13).

2.8 Factors associated with non-adherence

The reader will notice that many factors are presented through research to influence or be responsible for non-adherence. The factors are all the result of various studies by various researchers over many years. Each study or intervention was done by researchers with a specific point of view regarding the factors that they felt played a role in non-adherence or were responsible for non-adherence. Vrijens *et al.* (2012:695) indicated that intentional and unintentional non-adherence were defined in 2005 already and some research was done

measuring or describing the impact of intentional or unintentional non-adherence. Every researcher has an own and unique strategy of organising and categorizing the factors related to non-adherence. The researcher wishes to introduce to the reader the variety of factors to address the complexity of medication non-adherence. In the following section the intentional and unintentional aspects of non-adherence will be discussed where the patient is the focus of the phenomenon of non-adherence.

2.8.1 Intentional and unintentional non-adherence

Non-adherence can be a result of two behavioural actions by the patient and they are intentional and unintentional non-adherence (see Figure 2.1).

2.8.1.1 Unintentional non-adherence

Unintentional non-adherence occurs when the patient wants to follow the agreed treatment but is prevented from doing so by barriers that are beyond his/her control. The importance of unintentional non-adherence may lie in its potential significance to become future intentional non-adherence. Routine inquiring about unintentional non-adherence is necessary in order to proactively address patients' medication beliefs before they choose to discontinue therapy altogether. The selection of particular behavioural change techniques to address unintentional non-adherence may lead to better and more effective interventions (Molloy *et al.*, 2014:432).

Gould and Mitty (2010:292) created five domains of barriers that according to them may be responsible for **unintentional non-adherence**. The domains are physical, cognitive, psychological, sociocultural and economic.

Physical reasons may be responsible for unintentional non-adherence. For example, patients may have sensory losses such as hearing or vision loss, so they cannot read the labels, or they have problems with manual dexterity (Gould & Mitty, 2010:291) that might make it difficult to open a medicine container or other problems in using the treatment (Nice 2009:4).

In many cases patients say that they forget to take the medicine or they cannot remember whether they did (Nice 2009:4). Examples of unintentional non-adherence include difficulties in understanding the instructions. This may be because of deterioration of executive functions or increased cognitive impairment or dementia (Gould & Mitty, 2010:291). When the patient must manage a complex self-administrated medicine regimen the situation is further complicated.

Psychologically, patients may feel vulnerable, they may deny being a chronic patient every time a medication is taken, or they can be depressed or experience anxiety and this all can be reasons that lead to poor medication adherence (Gould & Mitty, 2010:292).

Socio cultural and socio demographic (Gadkiri & McHorney, 2012:98) reasons may also prompt unintentional non-adherence. Cultures differ regarding respect for people in power such as the physician. Cultures also differ in their perspective regarding the nature of pain and suffering and causes of illness, also their medication beliefs (Gadkiri & McHorney, 2012:98; Gould & Mitty, 2010:292). Some patients are more approximate about time and date and do not regard the timing of their medication doses as important. Some patients only have elementary school literacy in their native language or in English. The patient may not have the science or health literacy to understand how the body is working or how medication is working. People with low health literacy are more often largely unintentionally non-adherent (Ostini & Kairuz, 2013:1. They cannot read medication labels effectively nor follow the direction and adhere to complex medication regimens. Addressing non-adherence within the framework of health literacy is not as straightforward as was initially assumed because *medication knowledge alone* is not sufficient for addressing non-adherence (Ostini & Kairuz, 2013:1).

Low income, poor insurance coverage with high out of pocket payment, high cost of medication can contribute to non-adherence. Some patients must choose between food and medicine or they cut their prescribed dose in half to save money and the patients analyse the burden of the diseases as well as other elements such as lifestyle, cost and role of family to help to make a decision regarding adherence or non-adherence (Gould & Mitty, 2010:292).

2.8.1.2 Intentional or purposeful non-adherence

Intentional or purposeful non-adherence is associated with the patient's motivation and beliefs about medicine as ineffective, not necessary and unsafe (Clifford *et al.*, 2008:41); (Gould & Mitty, 2010:291). They may also mistrust the clinician's judgement (Gould & Mitty, 2010:291). Specific beliefs about medication may present a possibility to intervene with intentional non-adherence to improve the patient's non-adherence (Clifford *et al.*, 2008:40).

The Internet is an example of a ready source of any information and patients make use thereof and sometimes read conflicting evidence about the effect of the medicine. Patients may misunderstand the purpose of the drug or the nature of their illness. Patients sometimes intentionally stop the medication because of side-effects. Sometimes the patients stop the medication as they feel better and do not understand the concept of therapeutic dosage.

2.8.2 Factors that influence adherence positively or negatively

The previous paragraph illuminated the phenomenon where a patient decides to adhere to a medication regimen or not, either intentionally or unintentionally. The literature cites studies that investigated factors that enhance medication adherence, similarly the literature cites studies that

hinder medication adherence. Depending on a specific patient and all the factors applicable to the patient, the decision to adhere will be intentional or unintentional.

2.9 Adherence as a multi-faceted phenomenon

As early as 2002, the multifaceted character of the phenomenon adherence was acknowledged. The research of adherence where patients were the only factor and where patients were 'simply' expected to comply with treatment guidelines, developed to a paradigm where patients and providers are co-responsible for developing and implementing applicable treatment programmes (Christensen, 2004:121).

As many as **200** factors have been hypothesised to influence adherence (Clifford *et al.*, 2008:41). Adherence or non-adherence thus emerges as a multi-faceted phenomenon where the best results are obtained if more than one facet can be addressed simultaneously. It is thus clear that the multifaceted character of the phenomenon of adherence needs to be investigated and applied in interventions.

A few examples to demonstrate the multifaceted phenomenon are: The differences in adherence of HIV patients were associated with two aspects in Nigeria, namely available counselling services and free preliminary ARV eligibility investigations (Afolabi *et al.*, 2009:1), factors related to non-adherence can be related to patients, physician and the health-care system (Brown & Bussel, 2011:304).

Because barriers to medication adherence are complex and varied, strategies and solutions to improve medication adherence need to be multifactorial and it is concluded *inter alia* that medication adherence is not exclusively the responsibility of the patient. Medication-taking behaviour is complex and involves the patient, physician (pharmacist) and process components (Brown & Bussel, 2011:304). It is also important to note that identification of non-adherence is challenging and requires specific interviewing skills. Solutions to the problem include an encouraging and blame-free environment with the patient. Attention needs to be paid to rational non-adherence, improving patient education and assessing health literacy.

Strategies and components there-of that may improve the implementation of a prescribed drug dosing regimen and a maintenance of long term persistence are feedback of patients of their recent dosing history and cognitive-educational interventions (Demonceau *et al.*, 2013:1). Future research is needed on adherence-enhancing interventions with a focus on the multifaceted nature of non-adherence (Demonceau *et al.*, 2013:14).

2.10 Determinants of adherence

From the previous paragraphs the following two things need to be recognised: Firstly, the action of a patient to adhere to a medication regimen is either intentional or unintentional and secondly there is usually more than one determining factor impacting on a patient that result in adherence or not to a medication regimen. The authors Iuga and McGuire choose to call the factors determining medication adherence 'determinants' and the determinants can be categorized as various factors (Iuga & McGuire, 2014:39). Some of these determinants will now be mentioned and discussed grouped as determinants related to the patient, or determinants related to the providers of health care or determinants external to a patient, that is, factors that a patient cannot control (Iuga & McGuire, 2014:39). Various interdependencies between provider, patient and the system exist. The patient's perceptions of a specific disease may be influenced by the sociocultural background of the patient as well as the patient's experience with the disease and its severity. The strength of the patient-clinician communication, which may be a factor of the patient's cultural concordance, may be further influenced by the patient's perception.

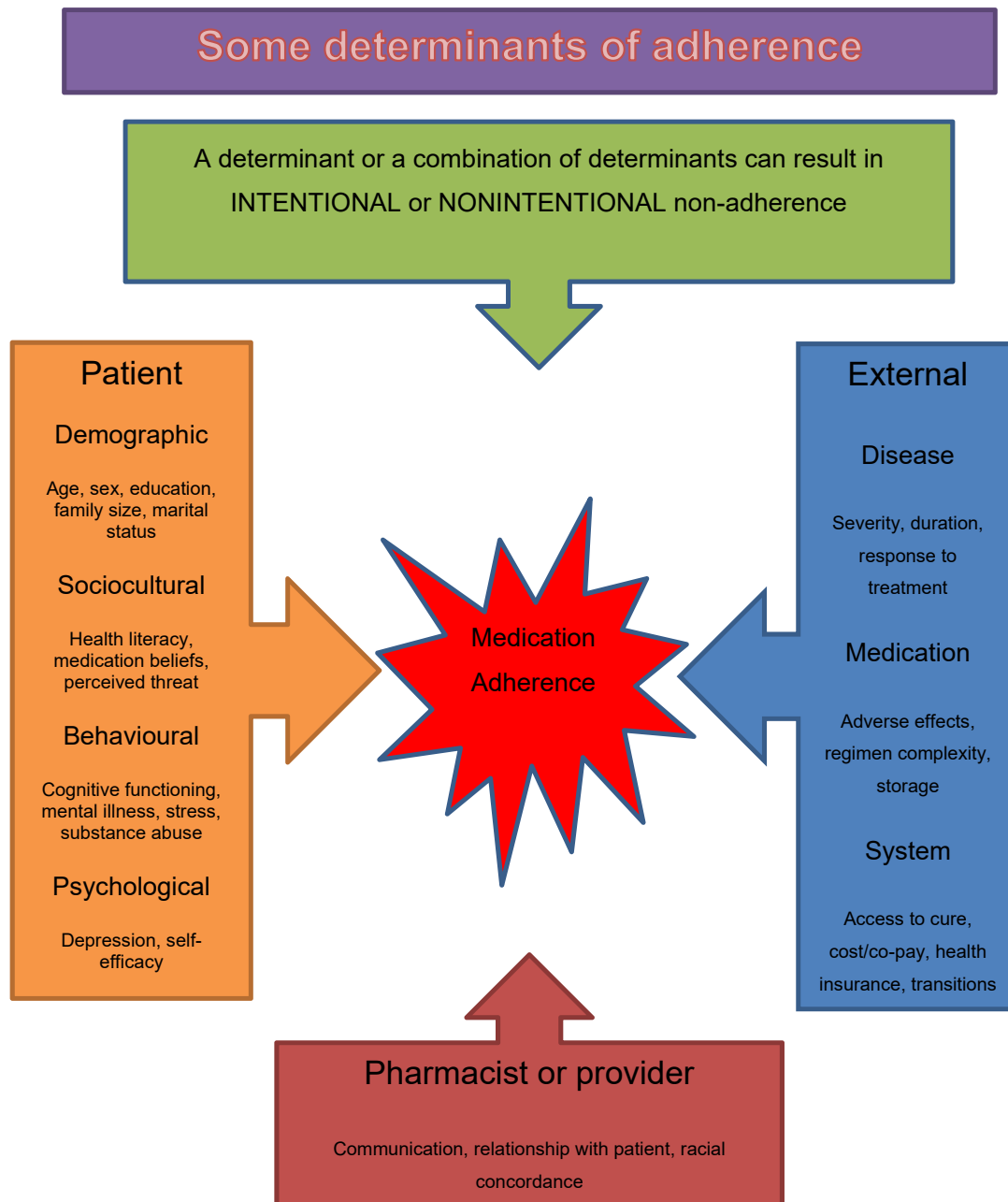


Figure 2.1: Determinants of medication adherence as adapted from Iuga and McGuire (2014:39)

There is a large body of literature available that investigates the determinants of medication adherence.

2.10.1 Determinants related to the patient

Patient-related determinants can be divided into the following categories, namely demographic, sociocultural, behavioural (Iuga & McGuire, 2014:39) and psychological (Horne *et al.*, 2005:13) or psychosocial (Schoenthaler *et al.*, 2016:1).

Demographic determinants can be age, sex, education, employment, income, family size and marital status. Sociocultural determinants are health literacy, medication beliefs and perceived threat. Behavioural determinants are cognitive functioning, mental illness, stress and substance abuse (Iuga & McGuire, 2014:39).

A patient's socio-economic status and the associated demographics also influence adherence. It seems that income and education are significant predictors. Age, disability and membership of specific cultural groups also related to the level of adherence (Kilgore *et al.*, 2016:A289.) These factors as well as medication beliefs are related to initial poor adherence (Zeber *et al.*, 2013:898).

Psychological as well as behavioural factors (Horne *et al.*, 2005:13) of the patients is of importance as adherence also seems to be a behavioural change phenomenon from the perspective of the patient. When diagnosed, patients are required to make, *inter alia*, life style changes, diet changes and health belief changes.

Psychosocial factors have a predictive role in medication adherence. Self-efficacy is a key predictor of medication adherence over time (Schoenthaler *et al.*, 2016:1). The initial levels of self-efficacy may be influenced by the presence of depressive symptoms. Depression is associated with medication non-adherence following acute coronary syndrome (ACS) (Crawshaw *et al.*, 2016:10).

One of the few conclusive pieces of evidence regarding adherence is a link between a combination of the self-efficacy and locus of control of the patient and medication adherence (Christensen, 2004:49). Asthma and chronic pulmonary disease patients with triple intervention programmes showed promising improvements in quality of life and reductions of hospital admissions, when compared to patients with normal intervention programmes (Lemmens *et al.*, 2009:670).

2.10.2 Determinants related to the health-care provider or pharmacist

The patient has no control over the health-care provider or pharmacist, the product or the packaging, even though they influences medication adherence (CPC Health Care Communications, 2002b:3.) The interactions between the patient and the pharmacist as provider play a role in adherence (Horne *et al.*, 2005:13). Although the pharmacist is not allowed to

prescribe the medicine, all other factors relate to the relationship between pharmacist and patient (Iuga & McGuire, 2014:39). Determinants of adherence related to the pharmacist as provider are communication, relationship with the patient and racial concordance.

The role and impact of the pharmacist need to be discussed in more detail. The pharmacist as provider is positioned as an external connector between the patient and external determinants (Iuga & McGuire, 2014:40). For an effective relationship to exist between pharmacist and patient, it is essential to engage patients in shared decision-making regarding medicine needs and the expected efficacy thereof. Communication is central to the effectiveness of this relationship and evidence exists that poor communication results in a 19% higher risk of non-adherence.

Interpersonal factors have a predictive role in medication adherence for example, the perceived quality of patient-provider communication (Schoenthaler *et al.*, 2016:1), where the pharmacist may play the role of the provider. Physician characteristics is associated with poor *initial medication adherence* (Zeber *et al.*, 2013:898). Training physicians leads to an improved change of patient adherence (Iuga & McGuire, 2014:40)

Cultural (racial) concordance between the physician/pharmacist and patient can affect the relationship. From the provider's perspective, inadequate time and communication tools were perceived to be the most important barriers to enhancing adherence (Iuga & McGuire, 2014:40).

2.10.3 External determinants

The external determinants of adherence could include medication properties, disease characteristics and system components (Iuga & McGuire, 2014:39) that includes societal policy and practice (Horne *et al.*, 2005:13).

Disease related adherence determinants are severity, duration and response to treatment. Medication related determinants of adherence are adverse effects, regimen complexity and storage requirements. System-related adherence determinants are access to care, cost and co-payments, health insurance and transitions of care.

Even though some authors classify patient experience as a factor related to the patient, including factors that contribute to a patient's experience of using prescriptions, e.g. the costs, adverse reaction and co-morbidities (CPC Health Care Communications, 2002b:3), these determinants of adherence are being grouped with external determinants because the patient has no leverage regarding costs, adverse events or co-morbidities. The patient has no control over the product or the packaging, even though it influences medication adherence (CPC Health Care Communications, 2002b:3). Risk factors associated with poor *initial medication adherence* are:

drug class or specific medication, medical comorbidities and pharmacy co-payment (Zeber *et al.*, 2013:898).

The health care system also determines adherence through restrictive formularies that may limit access to prescribed medications. Theoretically the systems should ensure the patient of the benefit and support of appropriate access and utilization of health care and medicine (Iuga & McGuire, 2014:39).

2.11 Models and frameworks to enhance medication adherence

In this section a background and some examples of models and frameworks are presented that researchers developed to grasp the extent of medication adherence in order to improve medication adherence.

2.11.1 Framework: Patient-centred pharmacist-led interaction to improve medication adherence

Wiener *et al.* (2015:595) conducted a study with the aim to create a model (framework) for use in patient-centred, pharmacist-led interactions to improve medication adherence. As pharmacists are one of the most accessible health-care professionals and pharmacists process medication distribution, they are uniquely qualified to improve adherence (Wiener *et al.*, 2015:596). The Health Action Process Approach (HAPA) is a behavioural framework and it was adapted to the known barriers of medication adherence to serve as the theoretical basis for the development of the framework. The main barriers identified were cost of medications and pill burden and having a supportive social network is beneficial for adherence (Wiener *et al.*, 2015:599).

The increased importance of the relationship between the patients and the pharmacists focused on patient-centred care. The framework was developed to improve medication adherence by facilitating the interactions and conversations between patient and pharmacist where other theories and models fail to recognize the factors (unforeseen barriers) between the forming of the intention and the resultant behaviour to follow through. Once the barriers are identified that hinders the patients medication adherence, then the patient and the pharmacist can find solutions to overcome the barriers and the result is an increased chance of medications adherence.

The researchers suggested that the application of the framework will further improve a pharmacist's abilities to assist patients in achieving medication adherence (Wiener *et al.*, 2015:599).

2.11.2 Multidisciplinary framework of Atreja *et al.* (2005)

The strategies to enhance patients adherence are often too complex, expensive and time-consuming and not practical for the everyday busy practice. As there is no single intervention strategy that has been shown to be effective, a combination of strategies is rather proposed (Atreja *et al.*, 2005:5). A conceptual framework based on a multidisciplinary approach is proposed which incorporates the health-care team and system-related factors to help reduce the time and cost involved in implementing strategies. The framework considers patient adherence not as a patient or physician issue but a systems problem and helps integrate the strategies at systems level by facilitate the awareness of the responsibilities and roles the each of the other health care workers involved in the patients adherence such as what pharmacists and nurses are playing (Atreja *et al.*, 2005:4). If the clinician understands and accepts the role of the pharmacist in imparting medication-related knowledge to the patients, the clinician may focus on other aspects of the treatment. The community pharmacist can help to increase the medication adherence by providing the patients with additional information about the individual drugs, identifying potential adverse drug reaction and interactions and supplying medicine aids such as containers. The proposed framework implies that adherence is a dynamic process that needs extensive re-evaluation of the patient using specific criteria to measure adherence, the process and the outcomes of an initiative.

2.11.3 Model determinants of medication adherence

Based on this model regarding the determinants of medication adherence, Iuga and McGuire (2014:40) selected the following strategies as these strategies can be seen as targeting the **patient**, **provider** and **external factors**. Strategies to enhance medication adherence regarding the **patient** may be

- education of the patient such as counselling by health-care workers;
- engagement of social structure such as family members to provide feedback and reminders;
- reminders such as automated alerts and more.

Strategies regarding the **provider** can be:

- improvement of relationship with patients by training of the health-care worker to improve communication skills and activation of the patient by improving patient-physician communication.

Strategies focused on **external factors** are:

- simpler regimens such as medications with a longer half-life or extended release;
- auto-delivery systems such as auto-injector pumps for diabetes patients;
- electronic medical records such as electronic prescribing;
- team-based care and care coordination such as patient-centred medical homes, case management and engagement of nurses and pharmacists; and
- value-based strategies such as lowering co-payment to improve adherence.

2.11.4 The Information-Motivation-Strategy Model (IMS) Model

The IMS Model was first introduced in the early 1980s. DiMatteo *et al.* (2011:1) conducted a narrative review of research on non-adherence and validates a clinically useful three-factor heuristic model to guide practitioners as they work with patients to improve adherence. They tried to offer a simple approach based on the (sometimes overwhelming) body of literature on improving patient adherence. The researchers mentioned that adherence is behaviour and it is often confused with its outcome. For example, blood pressure control is correlated to adherence behaviour but is not equivalent to it. A patient can be perfectly adherent and still have poor blood-pressure control. Adherence might be highly correlated with an outcome such as lowering of cholesterol but not with the ultimate health outcome and that will be the prevention of a myocardial infarction. The model is grounded in several classic health behaviour model and involves provider and patient factors including cognitive/intrapsychic, social/interactional and environmental factors (DiMatteo *et al.*, 2011:5). The models offer three broad categories to be reached to guide providers and patients towards adherence with a range of goals, actions and accomplishments that can be tailored to the individual patient. The goals of the IMS model were to offer clinicians (pharmacists as well) a valid and practical rubric for remembering and utilising the three broad elements of care essential for improving patient adherence.

A summary of the components of the model, the reasons for non-adherence and what the clinician can do to promote adherence are briefly discussed (DiMatteo *et al.*, 2011:6):

- **Information:** The reason for non-adherence is that the patients do not understand what they are supposed to do. The clinician must communicate information effectively to patients, build trust and encourage patients to participate in decision-making and to be a partner in their own health-care. The patients need to share why and how they are to carry out their treatment recommendations. The clinician (pharmacist) needs to listen to patient's concern and give them full attention.

- **Motivation:** The reason for non-adherence is that patients are not motivated to carry out their treatment recommendations. The clinician must help patients to believe in the efficacy of the treatment. The clinician (pharmacist) needs to elicit, listen to and discuss any negative attitudes of the patient towards treatment and determine the role of the patient's social support system. The clinician needs to help the patient to build commitment to adherence and to believe that they are capable of doing it.
- **Strategy:** The reason for non-adherence is that patients do not have a workable strategy for following treatment recommendations. The clinician must assist the patient in overcoming the practical barriers that stand in the way of the patient effectively carrying out a course of action as the patient need to be able to adhere (DiMatteo *et al.*, 2011:11). Identify individuals who can provide concrete assistance. The clinician needs to identify resources to provide financial aid when necessary and provide written instructions/reminders and electronic reminders or follow-up telephone calls.

'The IMS Model illustrates that knowledge, commitment and the ability are all crucial for maximising adherence' (DiMatteo *et al.*, 2011:13). The importance of the patient-practitioner relationship for effectively informing, motivating and strategizing is emphasised in this model. The effort of both the patients and clinicians (pharmacists) as well as other members of the health-care team and the social support group is required in addressing non-adherence as it is a complex problem.

2.11.5 The inter-professional collaboration model

The interactions between general practitioner (GP) and pharmacist and specifically around supporting their patients' medication adherence were qualitatively investigated and three themes were identified, namely frequency of interaction between GP and pharmacist, collaborators, and nature of communication that included two subthemes namely method of communication and type of communication (Rathbone *et al.*, 2016:1). The frequency of interactions between the GP and the pharmacist was low. The majority of the interactions between the GP and the pharmacists were per telephone. The face-to-face interactions between the GP and the pharmacist were perceived as more positive. Only a few interactions were related to non-adherence by patients. Adherence-related interactions between community pharmacists and GPs do exist but are infrequent and limited. Successful collaboration to improve medication adherence was underpinned by a shared paradigmatic perspectives and trust that had been constructed through regular face to face interaction between GP and pharmacists. Proposals are underway in Australia and funding arrangement are made in the UK to co-locate pharmacists in GP surgeries as an example of collaboration between pharmacists and GPs (Rathbone *et al.*, 2016:8).

In the following section the effectiveness of strategies to improve adherence will briefly be discussed.

2.12 Effectiveness of strategies to improve adherence

Two studies that concluded that the multifaceted approach to adherence were effective will be presented to give more weight to the multifaceted approach to adherence.

The effectiveness of intervention strategies to enhance adherence to medications in heart failure populations were identified and summarised. Data is presented that shows that many of the patients with chronic heart failure do not take their medicine as prescribed by health-care providers and that the non-adherence remains a barrier to enhancing effectiveness of existing treatments (Molloy *et al.*, 2012:126). Patient education alone may not be effective and from the literature it may be possible to improve adherence to medication in patients with coronary heart failure by using a range of strategies.

Various strategies were implemented to improve medication adherence in patients with chronic obstructive pulmonary disease (COPD) such as brief counselling, monitoring and feedback about inhaler use through electronic medication delivery devices and multi-component interventions consisting of self-management and care co-ordination delivered by pharmacists *inter alia* (Bryant *et al.*, 2013:1). At a 12-month follow-up only 71% of the intervention group were adherent and only 86% used the inhaler therapies correctly. Despite structured face-to-face motivational interviewing nearly one-third of the participants were still non-adherent at a six-month follow-up. 'The reasons for non-adherence among patients with COPD are multi-factorial and complex' (Bryant *et al.*, 2013:6). It is suggested by the authors that further research should be done exploring multi-component intervention success rates.

As can be seen from afore-mentioned examples, adherence is a multifaceted phenomenon that puts more emphasis on the development of interventions with a multifaceted approach by pharmacists or other health care workers. In the following section possible reasons for adherence and non-adherence will be discussed. Intervention will become increasingly difficult to conduct as so many factors need to be managed.

In the following section a general background of the role of the pharmacist in medication adherence will be investigated.

2.13 The roles and involvement of the pharmacist in medication adherence

Various health-care professionals play an important role in medication adherence especially the pharmacist. A general overview of the pharmacist's roles in medication adherence is provided,

but a more focused approach will be presented in the last chapter, as new knowledge developed through the research process.

2.13.1 General role

The International Pharmaceutical Federation (FIP) (2003:3) made a statement of professional standards in Sydney regarding the role of the pharmacist in encouraging adherence to long-term treatment. The statement explains the importance and need for adherence and pays special attention to the role pharmacists and other health care professionals play. The building blocks to secure adherence according to FIP were introduced and emphasise the role of the pharmacist in adherence as follows:

- High quality, tailored information for patients when they need it.
- Extending the educational role of physicians, pharmacists and practice nurses.
- Creating and using all available opportunities to discuss medicine issues.
- Training and supporting professionals in a different style of consultations.
- Including cultural beliefs, lifestyle priorities and medicine-taking issues of the patient.
- Sharing information between physicians, pharmacists, nurses and patients.

2.13.2 Educational role

The potential benefit of intervention by pharmacists to improve medication adherence in diabetes patients lies in patient education. The role of the pharmacist in medication adherence can be educational (Lindenmeyer *et al.*, 2006:409). Pharmacist-led integrated management and education programmes designed to improve glycaemic control in patients with Type 2 diabetes mellitus succeeded but it is not clear if the results obtained were from improved patient adherence. Most of the pharmacist's interventions reported are complex, especially those involved in more holistic care programmes. More qualitative studies where the pharmacist's involvement in care both for diabetes care teams and patients themselves need to be investigated (Lindenmeyer *et al.*, 2006:409). Education-related strategies were the most frequent pharmacists' interventions aiming at enhancing adherence to oral antidiabetic medication in patients with Type 2 diabetes (Omran *et al.*, 2012:292). Pharmacist interventions to improve medication adherence generally use an educational component designed to improve patient *knowledge* of drug therapy, *explain* drug side effects and methods to help minimize them, *describe* the risk of diabetes complications or *discuss* the advantages and disadvantages of adapting healthy lifestyle choices as well as the

patient's beliefs about medications. The educational component was combined with behavioural, affective or provider-targeted strategies.

The risk factors for drug non-adherence in antidepressant-treated patients and the implications of pharmacists' adherence instruction for adherence improvement included side effects of antidepressants treatment and type of depression (Murata *et al.*, 2012:863). Patients with melancholic depression were significantly more non-adherent with antidepressant medication than patients with other types of depression. The pharmacist's adherence instruction seemed to contribute to improved drug adherence after the start of self-management of the drug intake by the patient.

Health-care stakeholders in the USA are increasingly interested in the topic of patient medication adherence. In many projects and trials pharmacists have shown that they can provide effective medication adherence services such as providing dose administration aids, simplifying or synchronising medication regimes, exploring barriers to adherence using validated tools or helping patient's link medication taking to daily activities (Huston, 2015:721).

2.13.3 The supportive role in medication adherence of the elderly patient

Interventions by pharmacists to improve medication adherence in people with multiple chronic conditions targeting people over 70 years of age were primarily focused on the management of polypharmacy and reducing health-care costs (Williams *et al.*, 2008:132) and interventions designed to improve consumer medication adherence were almost exclusively conducted by pharmacists. A multi-disciplinary approach that bridges disciplines such as nursing and pharmacy would help to provide the patients with the skills, confidence, motivation, knowledge and support necessary for medication adherence. Interventions by pharmacists to enhance patient or service user interaction can be effective but are resource-intensive and the effectiveness can decline over time and interventions trying to reduce patient barriers such as using blister packs or reducing the complexity of medicine regimes have favourable results. Many difficulties are encountered when attempting to use interventions to promote medication adherence in older people such as their perceptions and beliefs, the appropriateness of the medicines prescribed as well as the impact of lifestyle patterns such as smoking, alcohol and diet (Banning, 2009:1505).

Pharmacists are mostly responsible for the repackaging of medication in containers that patients must use. Factors that led to the widespread adoption of multi-compartment compliance aids (MCA) in United Kingdom as well as limitations of their current use and their relevance in the future were identified (Gilmartin *et al.*, 2015:177) and it was found that MCAs were introduced to address unsafe medicine administration practices and because of pharmacy commercial

interests. Reduced staff alertness during medicine administration in care homes and the difficulty to identify medicines were identified as possible limitations. Continued use of the MCAs in the future due to the perceived benefits of improved safety and efficiency is foreseen in spite of the request that care home staff should be trained to administer medicine from the original packaging.

The role of the pharmacist not as an individual but as an essential part in the health-care chain will be discussed in the following section.

2.13.4 The essential link in the health-care chain

The pharmacist has an essential role in the health-care chain of the patients. An initiative launched in 2009 called Motivation for Medicines Adherence Services from an organisation called NPC Plus in England is an example of *how pharmacists* can deliver and be reimbursed (M4M, 2009). The importance of the pharmacist as a factor in medication adherence cannot be negated because pharmacists fulfil an essential link in the chain of health care to the patient.

In a survey commissioned by the Department of Health of Great Britain it was found that 75% of people have visited a community pharmacy for health-related reasons in a matter of six months and that community pharmacists are well-placed in England to support patients with their medication use. In January 2009 The National Institute of Health and Clinical Excellence (NICE) published a clinical guideline called: 'Medicines adherence: involving patients in decisions about prescribed medicines and supporting adherence' (Nice, 2009). The report is based on a review of relevant evidence and recommendations provided on how health care professionals (HCP) can help patients make informed decisions about their medicines and how they can support patients to adhere to their prescribed treatment. There HCPs are called upon to support adherence at appropriate times during the process of prescribing, dispensing, and reviewing medicine. The guidelines emphasise how different approaches by HCP are needed depending on whether the non-adherence is intentional (related to beliefs, concerns, side-effects) or not intentional (patient wants to follow the agreed treatment but is prevented from doing so by barriers beyond the control of the patient such as poor recall, difficulties in understanding, inability to comprehend and others) (Nice, 2009:4). Pharmacist-related interventions should be part of a multidisciplinary system of care initiated at discharge that involve personal contact and are continued indefinitely in order to sustain the impact and value of pharmacist interventions on adherence and outcomes benefits (Davis *et al.*, 2014:741).

2.13.5 Managing the cost of health-care

The pharmacist has a possible role to play in either increasing or decreasing the cost of medicine, although the pharmacist is bound by the diagnoses and prescription that is received from the

prescriber. In Cost-related Non-adherence (CRN) to medications patients selectively forego medications because of 'out of pocket' costs and are influenced in those decisions by non-cost factors such as negative beliefs and dissatisfaction with prescription medications (Kurlander *et al.*, 2009:2143). Pharmacists should ask patients specifically about which of their medications they have difficulty paying for (Kurlander *et al.*, 2009:2146).

However, the cost of an adherence intervention is directly related to the mode of delivery. Complex, coordinated care involving physicians, nurses, and case managers may be both successful and costly (Roebuck *et al.*, 2011:97). A pharmacist-led counselling together with electronic monitoring devices and a value-based insurance design are among the least costly alternatives but no matter what the intervention, actively encouraging medication adherence for chronic diseases should be a top priority.

Health-care stakeholders in the USA are increasingly interested in the topic of patient medication adherence (Huston, 2015:721). The burden of disease in terms of chronic diseases continues to escalate. Medication adherence leads to lower overall health-care use and health-care costs. Pharmacists have shown that they can provide effective medication adherence services and conducted a study to implement they deserve to benefit both financially and professionally when delivering services. Reimbursement issues, time and workload issues, optimizing workflow, increasing staffing, changing attitudes are key factors that need to be investigated. Research should firstly be focused on incorporating information smoothly into workflow as well as the training of pharmacists also needs to be pursued. Secondly, the differences in incentives, training, work flow, implementation pace etc. should be investigated to identify the factors with crucial impact on the implementation and persistence of pharmacy/pharmacist adherence services. Thirdly, the increase of the level of adherence services in community pharmacies is a complex situation that is influenced by several factors and research is needed on multiple levels including governmental and organizational policies and practices, practice site and most important pharmacist and patient challenges. Fourthly, health systems and reimbursement mechanism are changing all the time and research areas must also address the above mentioned to ultimately ensure the pharmacists' provision of the appropriate levels of adherence services and the highest levels of quality patient care possible (Huston, 2015:723)

2.13.6 Community pharmacists in community pharmacies

Adherence research studies in community pharmacies in England related to compliance aids, patient education, and community pharmacy involvement in discharge planning or patient-tailored intervention exist, but research to evaluate the effectiveness of community pharmacists' efforts to support patients with adherence is relatively limited (Clifford *et al.*, 2010: 80-81). National

policies and guidelines in England are conducive to an increasing role for community pharmacists to support patients with medication adherence (Clifford *et al.*, 2010:77). Many pharmacy schools include the issue of adherence in their under-graduate and post-graduate courses. The effectiveness of pharmacists providing adherence support in the form of compliance aids, education, and involvement in discharge planning, and tailored interventions were tested. A White Paper from the Department of Health in England released in 2009 sets out an innovative agenda for improving patient care by building on the existing strengths of community pharmacies to deliver further improvements in pharmacy services, e.g. as support with medication adherence (NCCPC, 2009:1).

The impact of the community pharmacists' intervention on the clinical management of patients with Diabetes Type 2 was measured as well as the testing of the sustainability of the effects on glycaemic control over a time of six months (Mehuys *et al.*, 2011:602). The intervention significantly reduced HBA1c and it was found that the diabetes education programme resulted in improved self-management and better knowledge of diabetes. This is new evidence of the beneficial effect of community pharmacists' intervention in the clinical management of Type-2 diabetic patients (Mehuys *et al.*, 2011:612).

The community pharmacist's intervention to improve adherence with antihypertensive medicines with a view to improve blood pressure control was evaluated (Stewart *et al.*, 2014:527) and the multifaceted community-based pharmacist intervention achieved a significant reduction in blood pressure and the process was implemented across 44 community pharmacies. Community pharmacists should engage in providing advice that is tailored to the specific patient with hypertension. Some key components of the overall multifaceted intervention are becoming increasingly common in pharmacy practice such as cell phone short message services (SMS) reminders, medicine use reviews of patients and automated blood pressure monitors. Private counselling areas are increasingly becoming standard requirement for Australian pharmacies as well as other countries. Lastly, a reimbursement system for the pharmacist intervention makes such intervention more viable than previously (Stewart *et al.*, 2014:533).

Not all interventions to improve medication adherence are successful and it was found that community pharmacists discussing patients' beliefs about their medicines did not improve medication adherence at 12-months post myocardial infarction (Gujral *et al.*, 2014:1048). The intervention identified beliefs and was tailored in the sense of identifying the individual's beliefs but was not tailored to those patients whose beliefs were responsible and driving their non-adherence (Gujral *et al.*, 2014:1056).

High-quality physician-pharmacist relationships were a significant predictor of adherence and of adherence promotion activities that may impact on satisfaction, ensuring smooth transitions in patient care, reducing antiretroviral therapy-related prescribing errors and so ensuring high quality care for persons living with HIV (Kibicho *et al.*, 2016).

2.13.7 Communication and counselling

Various studies pointed out the importance of the counselling role of the pharmacist during communication and specifically patient-centred communication. The degree of adherence, perception of various treatment recommendations and the effect of the pharmacist's intervention in improving adherence amongst patient on haemodialysis were evaluated (Venkateswararao *et al.*, 2014:82). They found that after oral counselling by pharmacists once in two weeks for three sessions as well as handing out of printed information leaflets and written information of dialysis in the language of the patients, the patients' perception of medication, diet and fluid showed improvements. Improving the patient's knowledge about disease and treatment may improve adherence (Venkateswararao *et al.*, 2014:85). The common reason for non-compliance by study subjects was forgetfulness and the intervention had a positive impact on the patients' perception and adherence.

Patients in community pharmacies expected an increase in the provision of medicine information and a reduction in the number of medications taken as the main strategies to promote adherence (Du Pasquier & Aslani, 2008:846). They believed that once the information was delivered in an understandable manner it would be their own responsibility to take their medicines as prescribed. Some participants complained about the information they received especially from doctors while a sub-group expected the pharmacist to be involved in adherence support. The participants were satisfied with the communication process when interacting with the pharmacist and relied on the pharmacist for information. All the participants were positive regarding concordance (adherence) as they valued the two-way communication and the increased consideration of their personal beliefs and needs. A shared treatment decision-making process is still not acceptable to some patients and most of the participants focussed on concordance with the doctors although another group of depressed patients showed a positive effect on adherence, treatment satisfaction and the patients' beliefs about antidepressants where the pharmacist's interventions were based on shared decision-making (Aljumah & Hassali, 2015:8). Shared decision-making is defined by Aljumah and Hassali (2015:2) as a two-way exchange of information, consultation and decision-making where deliberation and decisions are made by both the health-care professional and the patient'. Pharmacists should consider the high demand for medicine information as an opportunity for the pharmacists to influence the patients' expectations by offering information that

is tailored according to the patient's needs and highlight the important role pharmacists can play in providing care in regular pharmacy practice settings to improve medication adherence.

Pharmacists need to acknowledge the fact that patients and pharmacists have different views regarding medication (Ramström *et al.*, 2006:244). A dislike of medicine is a common attitude among patients according to Ramström *et al.* (2006:248). To achieve concordance in the pharmaceutical care process, pharmacists need to exchange information as part of the counselling process about patients' experiences and not take for granted that the patients share the same view as the pharmacists about medicines. It is suggested that a more patient-centred approach is needed in the communication process between the pharmacist and the patient. Both of the parties may need to re-consider their attitudes and behaviour and patients should be allowed to play a more active role in the communication process by acknowledging the patient's experience, viewpoint and knowledge. About a third of the patients in the study believed that 'People who take medicines should stop their treatment for a while every now and again'. This belief indicates that patients might have doubts about adherence to their medication and counselling might solve this problem (Ramström *et al.*, 2006:247).

Ensuring appropriate medication adherence is difficult with the United States health-care system and encouraging individuals with chronic conditions to proper use of medicines remains challenging. Pharmacists *inter alia* need to implement innovative strategies to incentivise and encourage patient to maintain medication adherence. According to the pharmacist's role in medication adherence intervention is the targeted and **personalised** interventions between patients and pharmacists such as face to face communication in meeting or phone calls from pharmacists (Braithwaite *et al.*, 2013:12).

2.13.8 Telephone counselling

As face to face communication is not always possible, an alternative might be counselling by telephone. Telephone counselling by pharmacists improved satisfaction with counselling and satisfaction with information on some items (Kooy *et al.*, 2015:797). Most patients appreciate this type of counselling and it seems feasible to implement this intervention in a daily clinical practice. It had a small effect on beliefs about medicine. The effects of telephone counselling were more pronounced in men. Patients in general who received counselling were more satisfied with some information, had fewer concerns about medication and a less frequent 'sceptical' attitude (Kooy *et al.*, 2015:803). A brief telephone intervention resulted in significantly better adherence measurements during the six months following the intervention as well as a lower discontinuation rate among a group of non-adherent patients. However, improving the adherence to clinically meaningful values will require more than a brief pharmacist's telephone call. Motivational

interviewing techniques incorporated with follow-up calls to address the barriers may be more influential according to Abughosh *et al.* (2016:63). The role of the pharmacist in direct communication with the patient is of particular importance if compared with communication by telephone (Molloy *et al.*, 2011:132).

In this section a background of many of the roles of the pharmacist regarding medication adherence were investigated. The barriers that the pharmacist may encounter in medication adherence will be discussed in the following section.

2.14 Barriers pharmacists may encounter in medication adherence

Pharmacists may experience barriers during interaction with patients to improve medical non-adherence that has an effect on the pharmacists (Mansoor *et al.*, 2015:769). Time pressure for patients was perceived by pharmacists as the main barrier to adherence support. Stakeholder skills and the number of full time equivalent staff are influencing provision of adherence support strategies. The role of the patient in non-adherence is usually measured but health-care professionals also have an influence on the patient behaviour of taking medicine. From the patient's point of view, non-adherence can have positive outcomes as some of the patients who fail to take the medicine are avoiding especially unpleasant side-effects and they may perceive their situation as one of autonomy (Clyne *et al.*, 2016:1). The extent to which health-care professionals seek to identify medication non-adherence in routine clinical practice generates concern as the health care professionals that had some element of training in medication adherence are more likely to ask key questions regarding medication adherence of patients with long term conditions. Pharmacists persistently report that they intervene less than the other two professions (doctors and nurses) to support patients with medicines (Clyne *et al.*, 2016:7). Where pharmacists are part of the primary health-care team it appears that although pharmacists have particular expertise and training in medicine and pharmaceuticals, they do not take the leading role in supporting patients with medicine use. The physical environment and role of pharmacists in community and primary care settings may act as barriers and hinder their ability to assist patients more than nurses but both groups reported that they typically spend less time talking with patients about their use of medications than the doctors. The pharmacists received more adherence training than doctors and nurses but may be influenced or inhibited from intervening to support patients with medication adherence. There is plenty of scope for primary care health-care professionals (pharmacists, doctors and nurses) to increase the frequency with which they provide support to patient with long-term conditions (Clyne *et al.*, 2016:8).

A qualitative study to explore pharmacists' perceptions and experiences with implementation of a medication adherence programme for patients with hypertension, diabetes mellitus and/or

dyslipidaemia were not successful and four major barriers were identified for the failure (Marquis *et al.*, 2014:1014). Poor communication with the patient resulting in insufficient promotion of the programme, insufficient collaborations between the pharmacists and the physicians, difficulty to integrate the program into the pharmacy's normal organisation and lastly insufficient motivation from the side of the pharmacists were identified as barriers to the programme. The insufficient motivation from the side of the pharmacist to promote and implement the study was *inter alia* related to the remuneration that was perceived as insufficient as well as the absence of clear strategic thinking about pharmacists' position in the health-care system. The implementation of an adherence programme implies a similar important change in the vision of the pharmacists regarding his/her position in the health-care system as the implementation of an adherence program (Marquis *et al.*, 2014:1021). With a long term development such as a research intervention or an adherence programme, the pharmacists should develop their interpersonal skills as well as their leadership skills and a reorganisation of the workload, adjustment in human resources and novel skills acquisition need to be put in place. Competent authorities and professional bodies should also endorse such a new vision before it can be successful.

In this section barriers pharmacists may encounter in medication adherence were investigated. In the following section the perception of pharmacy students regarding medication adherence will be discussed.

2.15 Pharmacy students' perception regarding medication adherence

It is also important to take note of the pharmacy students' perceptions of medication adherence as they are the pharmacists of tomorrow. A 'pillbox' simulation project was implemented to evaluate where the change in the students' perceptions of medication adherence occurred evaluated by comparing pre-simulation and post-simulation survey responses. The students' responses were positive and demonstrated an increase in positive perceptions of medication adherence. Changes in the survey responses (although not significant) tended to be higher amongst didactic learners as compared to experiential learners (Wilhoite *et al.*, 2016:634).

Adherence and drug interaction rates of medication taken by students who were counselled and students who were not counselled were compared and it was expected that those who were counselled would have had fewer simulated drug interactions and that the counselling they received would provide them with the ability to see the impact of counselling on patients. The majority (89.1%) of the students felt that they better understood the medication adherence challenges faced by patients (Volino *et al.*, 2014:4).

Students are also experiencing barriers equal to those of the practising pharmacists although they were still in training (Mangan *et al.*, 2012:376). The barriers perceived by student pharmacists to counsel patients on medication adherence in a supermarket community pharmacy chain were identified. The students were constrained for time to counsel patients on adherence and to perform the continued follow-up with patients afterwards. The students also identified a lack of time, lack of specific training in adherence management, lack of resources to hand to the patient and patient disinterest in the subject.

In this section the perceptions of pharmacy students regarding medication adherence were discussed.

In the following section South African Health Care Sector will briefly be discussed as to provide the reader background information regarding the workplace of the pharmacist in South Africa.

2.16 The South African health-care system

To understand the role of the pharmacist in medication adherence in the South African health-care system it is necessary to provide the reader with basic background knowledge and information regarding the variety of different settings that the pharmacist called his/her workplace or pharmacy.

2.16.1 Background

The South African health-care system can be divided into a public health-care sector and a private health-care sector according to the definitions of the South African Pharmacy Council (SAPC).

The SAPC (RSA DoH 2003:1) published 'Regulations relating to the Ownership and Licencing of Pharmacies' where the definitions of public and private health facilities, community pharmacy and Institutional pharmacies were published. All of the following definitions come from the above mentioned publication.

A **private health facility** is defined as 'any hospital, institution or facility at which provision is made for medical treatment or health care services which is not owned or controlled by the State, and includes facilities such as a clinic, mobile clinic, community health centre, maternity home, or unattached delivery suite, convalescent home, unattached operating theatre and sanatorium but does not include a consulting room, surgery or dispensary of an authorised prescriber'. A **public health facility's** definition is: '... public health facility means any hospital, institution or facility at which provision is made for medical treatment or other health care services and includes facilities such as a clinic, mobile clinic, community health centre, maternity home or unattached delivery

suite, convalescent home, unattached operating theatre and sanatorium that is owned by the State or organ of the State’

Institutional pharmacies or hospital pharmacies are also divided into public hospitals and private hospitals and defined as: ‘An *institutional pharmacy* means a pharmacy situated in a public health facility, wherein or from which some or all of the services as prescribed in terms of regulation 18 of the Regulations Relating to the Practice of Pharmacy are provided to the general public requiring pharmaceutical services, medical or surgical treatment, nursing or other health care from or at that **public health facility**; or in a **private health facility**, wherein or from which some or all of the services as prescribed in terms of regulation 18 of the Regulations Relating to the Practice of Pharmacy are provided to persons requiring pharmaceutical services, medical or surgical treatment, nursing or other health care from or at that private health facility’

The last definition of importance is that of the community pharmacy. A community pharmacy means ‘a pharmacy wherein or from which some or all of the services as prescribed in terms of regulation 18 of the Regulations Relating to the Practice of Pharmacy are provided to the general public or any defined group of the general public, but excludes an institutional pharmacy’.

The community or retail pharmacies in the private health-care sector in South Africa can also be divided into pharmacies that are owned by corporate groups of pharmacies or pharmacies owned by independent owners (HSF 2013:61).

2.16.2 Public health-care system

The basic difference between the public and private health-care systems in South Africa is ‘Who is paying for the health care service?’ The National Department of Health (NDoH) and ultimately the taxpayers are funding the public sector. The public sector hospitals and the pharmacies operational in hospitals are classified either as district hospitals, regional hospitals and specialist or training hospitals and are managed by the National Department of Health. There are also other pharmacies in hospitals as part of the public sector where pharmacists are working such as the pharmacies of the National Defence Force, psychiatric hospitals and some facilities of the Department of Correctional Services. The relevance of public health in the current and future pharmacy practice in South Africa and indicated that significant challenges remain for pharmacists to increase their involvement in public health in South Africa (Bradley *et al.*, 2011:34). Pharmacists working for the National Department of Health at national, provincial and district level, medical schemes and non-governmental organisations are mostly likely to be involved in macro-level activities such as medicine policy and regulations, rational drug use, drug supply management and more. Some governmental initiatives in South Africa are likely to provide

opportunities for pharmacists to increase their involvement in public health in South Africa (Bradley *et al.*, 2011:36). Pharmacists working in community pharmacies (private health-care sector) and at primary care level (public health-care sector) are more likely to be involved in micro-level activities such as 'adherence support' (counselling and provision of compliance aids), blood pressure screening and monitoring, diabetes screening and monitoring and more according to Bradley *et al.* (2011:35).

There are relative few pharmacists working full-time in the Primary Health-Care clinics that are situated in the towns and cities and nursing staff are seeing patients and dispensing basic medicines. If it is deemed necessary, the patient is referred to the district hospital where the patient will receive his/her medicine through the hospital pharmacy system if prescribed after a consultation with the physicians. In the wards in the hospitals the nursing staff will hand out the medicine to the patients. When the patient is released from the hospital, the hospital pharmacy will give the 'tto' (to take out medicine) to the patient and the hospital pharmacy also services patients who collect their chronic medicine there and not from the clinics.

The pharmacists as well as the pharmacies in the public sector should be registered with South African Pharmacy Council (SAPC). The role of the SAPC will be discussed later.

2.16.3 Private health-care sector

The private health-care sector in South Africa is privately owned by various individuals or large corporate groups. The pharmacies in the private sector in South Africa can be divided into hospital (institutional) pharmacies and retail or community pharmacies. These hospitals and hospital pharmacies are owned by private hospital groups. The retail or community pharmacies can again be divided for the purposes of this study into privately-owned pharmacies and corporate-owned pharmacies. The corporate-owned pharmacies are part of large corporate pharmacy groups with many pharmacies all over South Africa. The pharmacies are usually large with many pharmacists employed there and there is a huge front shop selling various health-related articles. The privately owned pharmacies are usually smaller, with single or more than one owner pharmacies in the community of a town or suburb of a city. There are not many pharmacists working there, mostly one or maximum of three pharmacists and the front shop is small in comparison to the corporate pharmacies.

Another important factor to take into account is that the regulation that only pharmacists may be the owner of a pharmacy have been changed in 23 April 2003 when the SAPC (RSA DoH 2003:1) published 'Regulations relating to the Ownership and Licencing of Pharmacies' where the regulations relating to the changed ownership of pharmacies were introduced. It opened up the

ownership of pharmacies and many corporate pharmacy groups are now owned by non-pharmacists while most of the private single-owner pharmacies are still owned by pharmacists. It is still law that a responsible pharmacist must be in charge of the pharmacy.

The patients who utilise the private health sector in South Africa are mostly employed people with a basic salary as they have to pay for their medicine and services. Most patients are members of different private medical schemes (third-party insurance payers). The medical schemes have many rules regarding medicine use of the member and dependents and the use of generic medicine to lower medicine costs is greatly welcomed and supported. Most of the medical schemes do expect of the patient to make a co-payment as a percentage of the price of the medicine the patient receives from the pharmacist. Some of the corporate pharmacy groups do waive the entire co-payment or provide a discount but most of the single owner private pharmacies do not have the financial capacity to waive or discount the co-payment. All the pharmacies as well as the pharmacists in the private health-care sector are registered with the SAPC that regulates the practice of pharmacy in South Africa.

Some pharmacists may also fulfil managerial functions in management positions in the pharmacies of both the private health-care sector and public health-care sector and may have minimum interaction with the patient.

2.16.4 Other pharmaceutical sectors in South Africa

Pharmacists are also found in several other sectors of the pharmaceutical sector in South Africa. Some pharmacists are not always permanently in interaction with patients as they are either in management positions, providing education and training, manufacturing, administrative responsibilities, etc. All practising pharmacists are registered with SAPC in South Africa. Some settings and workplaces where pharmacists may be found are pharmaceutical companies, the South African Pharmacy Council (SAPC), the Pharmaceutical Society of South Africa (PSSA), tertiary training institution such as Schools of Pharmacy, managed health-care organizations, medical schemes, private consultants, National Department of Health and other governmental structures, Non-Governmental Organizations, the Medicine Control Council, locum pharmacists and more. The following sectors are registered with the SAPC: Academic institutions, community pharmacy, consultant pharmacy, institutional private, institutional public, manufacturing pharmacy, wholesale pharmacy (private) and wholesale pharmacy (public) (SAPC, 2016).

The private and public health-care sectors of South Africa were briefly discussed with emphasis on the different settings and systems in which pharmacist are working. In the following section the South African Pharmacy Council (SAPC) will be discussed.

2.17 The South African Pharmacy Council

In this section the statutory responsibilities to regulate the practice of pharmacy of the SAPC in South Africa will be discussed. For the reader to grasp the complexity of some of the Rules, Regulations and Laws that pharmacists in South Africa must adhere to in his/her handling of medicine and in the interactions with the patient, the reader will be presented with a few detailed quotations from the documentation. As most of the documentation spells out the Scope of Practice of the pharmacists it is important to take note thereof as it defines the playing field and the rules of the game and the roles the pharmacist are required to fulfil. On this playing field the pharmacist handles medicine and is in interaction with the patient.

2.17.1 Statutory powers of the SAPC

In the South African health-care system the underlying philosophy of the pharmacy profession spells it out that pharmacists are committed to fulfil the health-care needs of South Africa and its people. The SAPC is according to the SAPC's official website 'an independent statutory body created as a result of the recognition of the pharmacy profession by the legislature in South Africa, as a specific occupational group'. The SAPC is established in terms of the Pharmacy Act, 1974 (Act 53 of 1974) as amended. The SAPC is vested with statutory powers of peer review and is responsible for funding itself and the mission of the SAPC is to ensure the provision of quality pharmaceutical services in South Africa by developing, enhancing and upholding universally acceptable standards, professional ethics and conduct, ongoing competence and Pharmaceutical Care' (SAPC, 2016, Website of the SAPC). The researcher highlighted the term *Pharmaceutical Care* in this as well as following sections to emphasise the importance of the term as it appears in the mentioned documentation. The definitions and connection with medication adherence will be discussed in Chapter 2.18.1

2.17.2 Good Pharmacy Practice in South Africa document (GPP)

The SAPC published the *Good Pharmacy Practice in South Africa* document (SAPC, 2010) to guide the pharmacists of South Africa towards achievement of the above-mentioned mission and responsibility of the SAPC. The document sets the stage for the standards of the services that every pharmacist in South Africa must adhere to when those services are rendered to the people of South Africa.

An extract from the Introduction of the GPP document explaining that the Scope of Practice of the pharmacists in South Africa has its roots in Section 35A of the Pharmacy Act: '*All practising pharmacists are obliged to ensure that the service they provide is of high quality and complies with Good Pharmacy Practice Standards as published by Council in rules. This document (Good*

Pharmacy Practice in South Africa) indicates how that obligation can be met. Good Pharmacy Practice is obligatory in terms of Section 35A of the Pharmacy Act 53 of 1974, as amended ('the Pharmacy Act'), Regulation 20(1) of the Regulations Relating to the Practice of Pharmacy and Regulation 7(a) of the Regulations Relating to the Ownership and Licensing of Pharmacies published in terms of the Pharmacy Act as well as Regulation 18(7)(b) of the General Regulations published in terms of the Medicines and Related Substances Act 101 of 1965, as amended (the 'Medicines Act') (SAPC, 2010:3).

The underlying philosophy of the pharmacy profession in South Africa is described in the following extract from the GPP document:

'Pharmacy as a dynamic, information-driven, patient-orientated profession, through its infrastructure, competence and skills, is committed to fulfil the health care needs of South Africa and its people.'

The document further describes the roles of the pharmacist according to the GPP as the 'custodian of medicine; formulator, manufacturer, distributor and controller of safe, effective and quality medicine; adviser on the safe, rational and appropriate use of medicine; provider of accessible, essential clinical services including screening and referral services; accessible provider of health care information; provider of **pharmaceutical care by taking responsibility for the therapeutic outcome of therapy and by being actively involved in the design, implementation and monitoring of an effective pharmaceutical service**; profession committed to competency and professionalism; profession committed to co-operation with other members of the health care team in the interest of the patient; and profession committed to cost-effective pharmaceutical services' (SAPC, 2010:4).

The above roles describe the scope of practice of the pharmacist in South Africa, in other words, the roles the pharmacist could fulfil and therefore all of the above-mentioned roles are of importance to this study as they provide the theoretical basis of which roles the pharmacists in the study could identify. The readers are asked to pay attention to the sixth sub-part (f) where the term **pharmaceutical care** (Chapter 2.18) as well as a definition is provided as one of the roles of the pharmacist. It is clear from the above that pharmaceutical care is adopted by the SAPC as part of the underlying philosophy of the pharmacy profession in South Africa.

2.17.3 Scope of practice of the South African pharmacist

The scope of practice of the pharmacist in relation to pharmaceutical care especially is further illuminated by the last extract from the GPP document where pharmaceutical care is regarded as part of the scope of practice of the South African pharmacist and some of the functions of

pharmaceutical care are described. Of special interest is that **patient compliance** is specifically mentioned in the following context: 'Determining **patient compliance** with the therapy and follow-up to ensure that the patient's medicine-related needs are met '

After the synonymous use of the term 'compliance' with 'adherence' had been discussed in previous sections of this chapter (see paragraph 2.4), the researcher will substitute the term compliance with the term '*adherence*' for the purposes of this study.

It has thus been established that the SAPC has adopted pharmaceutical care as a part of the practice of pharmacists in South Africa. Because the patient adherence with the therapy must be determined by the pharmacist and followed up to ensure that the patient's medicine-related needs are met (medication adherence) it is necessary to define the term *pharmaceutical care* and to investigate the use of pharmaceutical care globally as well as in South Africa. Pharmaceutical care considers the determinant of patient adherence as a function of the pharmacist in South Africa, the concept of pharmaceutical care, the definition, global barriers affecting pharmaceutical care and examples of pharmaceutical care in South Africa need to be investigated for the purposes of this study.

2.18 Pharmaceutical Care (PC) and Compliance

Pharmaceutical Care (PC) will be defined and the concept of PC and the global character of PC will be briefly discussed.

2.18.1 Defining Pharmaceutical Care

Hepler and Strand (1989:15s) defined PC as follows: 'The responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life'. These outcomes are: curing of the disease, elimination or reduction of a patient's symptomatology, arresting or slowing of a disease process, and preventing a disease or symptomatology.

In 1997, Linda Strand one of the original researchers defining PC, said that the definition of Hepler and Strand (1989:15s) was incomplete (Strand, 1997:899). The definition Strand then proposed for PC is a '*practice in which the practitioner takes responsibility for a patient's drug related needs and holds him or herself accountable for meeting these needs*'. PC is a practice according to her and it has a philosophy, a patient care process and a management system and the basis of the new philosophy is where the patient is the focus of the pharmacist, according to Strand. The philosophy of PC can thus be summarized as firstly the achievement of definite outcomes that improve the patient's life and secondly the practitioner (pharmacists) who takes responsibility for the patient's drug-related needs. The philosophy assumed that a profession was only justified if

it contributed to the solution of a unique set of problems such as medicine-morbidity and mortality as they acquire expertise of a professional nature. As medicine could make a person either sick or better, there was a need to optimize therapy. The responsibility of the PC practitioner is to ensure that there is an indication for every item or drug therapy and that any medicine used is the most effective and the safest and that the patient is compliant or adherent (Strand, 1997:899). The PC process is assessing the patient's needs using resources to meet those needs and then following up to make sure that what had been done by the pharmacist was beneficial. The PC process comprised three steps: assessment of the patient's drug therapy needs, a personalized care plan that embraced those needs and a follow up evaluation to make sure those needs had been met. The process needed to be fully recorded stated Strand (1997:900). The philosophy of PC can thus be summarized as firstly the achieving of definite outcomes that improves the patients live and secondly the practitioner (pharmacists) that takes responsibility for the patients drug related needs.

The board of the Pharmaceutical Care Network Europe (PCNE) felt the need to redefine PC and to answer the question: 'What is Pharmaceutical Care in 2013?' Through a process of a literature search and a one-day workshop the experts consisting of the fourteen members of PCNE and ten additional experts agreed upon the proposed definition of PC: '*Pharmaceutical Care is the pharmacist's contribution to the care of individuals in the order to optimise medicine use and improve health outcomes*' (Allemann *et al.*, 2014:544). The patient as well as the care for the patient's medicine use in order to better the patient's health is still the primary focus of pharmacists practising PC when compared to the original definition of Hepler and Strand as well as Strand's later definition.

2.18.2 Pharmaceutical Care (PC) in the global context

Since the conception of pharmaceutical care, research had been done to investigate the implementation, management and results or outcomes of PC. Some research findings regarding the barriers according to pharmacists that restrict the implementation and development of PC in different countries will be presented in the following section

While PC provision is limited in Jordan, the pharmacists have a good understanding thereof and they expressed a willingness to implement the practice of PC. A number of barriers preventing the successful implementation of PC has been identified. The most commonly reported perceived barriers are a lack of pharmaceutical training, lack of space, lack of local data on the value of PC, communication with physicians and physician's acceptance (AbuRuz *et al.*, 2012:78). In Sudan many barriers that hinder the implementation of PC such as education and training, drug information technology, resource attitudes and the health-care system. The most important

barriers are, *inter alia*, a lack of clinical knowledge and skills, lack of time and a non-understanding of the pharmacists' new patient-focused role as well as defective consultation areas. Hospital pharmacists in Kuwait have overall positive attitudes towards the implementation of PC in hospital pharmacies. They felt the least prepared in the administrative and management aspects of the PC pharmacy and could benefit from education and training with specific emphasis on actual PC competencies. Several technical, organizational and professional barriers were reported such as a lack of private counselling areas and a lack of time of the pharmacists according to Katoue *et al.* (2014:1177).

Brazilian community pharmacists' knowledge of the concept of PC and the practices in relation to the service in four Brazilian cities was measured. A total of 486 pharmacies were initially visited and 112 pharmacists participated in the study. Although 70.5% of the pharmacists said that they performed PC, only 2.5% of the pharmacists effectively carried out the level of pharmaceutical care as recommended by the Brazilian guidelines and it was suggested that the pharmacists were not yet ready to perform PC in community pharmacies in Brazil and it was necessary to review the pharmacists' training to enable the pharmacists to perform the service of PC (Dos Reis *et al.*, 2015:287). They identified several organizational, technical and professional barriers that needed to be overcome in community pharmacies, hospital pharmacies and education to ensure a broader practical implementation of PC were identified (Kumanov, 2015:25).

Pharmacists should be trained to develop their practical skills if they are to achieve the goal of good evidence based PC. There are differences in the pharmacy services and medication management issues but there are always decisions to be made in all functions of the PC process such as to identify, resolve and prevent drug-related problems. The use of an evidence-based approach also proceeds towards the pharmacist in the pharmacy and eventually the practice of PC (Heidari, 2014:140). Evidence-based practice has four sequential steps: 'Formulating a clear question based on a clinical problem; searching for relevant evidence in the literature; critically appraising the validity of the found evidence and finally applying the findings to the patients pharmaceutical care' (Thomas *et al.*, 2011:253). Evidence-based PC care that is based on scientific evidence from good quality research and is used as guide and adapted to each individual patient's circumstances seems promising to improve the quality of PC (Al-Qureimat & Amer, 2014:450).

In this section the barriers affecting PC have been investigated briefly. The following section will provide an overview of the prevalence of PC in South Africa will be presented

2.18.3 Pharmaceutical Care in South Africa

In this section research findings regarding research projects on PC activities in South Africa are presented as background to the reader. As PC is not the primary focus of this study the researcher will conclude with only a few examples.

In a study done by Hill (2009:ii) the potential of South African community pharmacists to positively influence patient adherence and metabolic control of Type 2 diabetes was investigated. He found that adherence to medication and self-management was similarly good for the control group of patients and the intervention group. The control group pharmacists were requested to offer their standard PC while the intervention group pharmacists were provided with a diabetes care plan according to the scope of practice the pharmacist has to guide the diabetes care the pharmacists were provided with. There were also no significant differences between the two groups for any of the psychosocial variables measured. The group of pharmacists handling the intervention were not able to significantly influence glycaemic control or therapeutic adherence compared to the group of pharmacists not doing the intervention thus the control pharmacists. The study also demonstrated that a good foundational basis exists within the South African patient-community pharmacist for the delivery of the activities associated with the practice of pharmaceutical care as well as patient acceptance and satisfaction with the diabetes care provided by pharmacists (Hill, 2009:184).

Cassim and Dludlu (2012:51) conducted a study to determine whether pharmacists at one independently owned retail pharmacy were compliant with Good Pharmacy Practice (GPP) standards for the provision of PC to patients as the pharmacy's performance management system (PMS) might undermine compliance with the GPP standards and thus provision of PC. At least 50% of the 200 participants perceived that only two out the 10 pharmaceutical care services were always provided. All pharmacists working in the pharmacy agreed that the provision of PC was a key performance area. Nine key weaknesses in the PMS were identified and these weaknesses may undermine compliance with GPP standards. The non-compliance with the GPP standards increased the potential risk for harm to the patient. The PMS may undermine the GPP standard that the pharmaceutical profession acts in the best interest of the patient if the PMS does not emphasise compliance with these standards (Cassim & Dludlu, 2012:58).

At clinics where patients receive their antiretroviral therapy and PC was undertaken by health-care workers other than the pharmacist. Fatti *et al.* (2016:107) compared the PC quality, patient clinical outcome and provider staff costs of two task-shifting pharmaceutical care models. The models were an indirectly supervised pharmacist assistant (ISPA) model and a nurse managed (NM) model. The NM model has been developed to address the severe shortage of pharmacists

in providing antiretroviral treatment (ART) in South Africa. At the ISPA facilities patient attrition was observed to be lower and viral suppression was higher than at the NM sites. The ISPA model had a higher quality of pharmaceutical care and was less costly to implement.

The possible roles of the pharmacist providing PC in the surgical ward of hospitals providing PC were investigated (Pretorius, 2011:viii). The need for the provision of pharmaceutical care from the pharmacist to the surgical wards of Steve Biko Academic Hospital was pointed out as a total of 188 interventions were made and documented during the study period of which 81.4% were accepted. The total time spent providing PC over a study period of 32 days was an average of 7.1 hours per day. Of the total time, 48% was spent providing PC to the patients and the rest of the time divided into recording antibiotic usage, administration and meetings. The pharmacist in the ward functioned as a gatekeeper between nursing staff and doctors and also played an important role in the education of nursing staff as well as educational sessions with patients. The doctors and nursing staff felt that there was a need for a pharmacist in the ward providing PC. The functions performed by a clinical pharmacist while based in a surgical and trauma intensive care unit of a teaching hospital in South Africa were, *inter alia*, the identification and addressing of medicine related problems (Bronkhorst *et al.*, 2014:1). The act of performing pharmaceutical interventions by a pharmacist as part of a health-care team were considered to be PC and of the 250 hours the pharmacist spent in the ward, 28% of the time was used for PC.

In this section the examples of PC in South Africa in both private and public health care sector were investigated.

In the next section the research question and answers are discussed.

2.19 Research questions answered

The first group of research questions as stated in Chapter 1 were successfully answered in this chapter. The research questions were all related to the term *adherence* and answered through the literature review. The research questions were as follows.

- What is medication adherence?
- What are the facets of medication adherence?
- What are the definitions of the related terms to medication adherence as well as non-adherence?
- What are the implications of non-adherence?

- What is the role of the pharmacist as care-giver in medication adherence?

It can thus be deduced that the researcher successfully answered the first group of research questions pertaining to the literature study. The Chapter will be ended with a reflection on the chapter and the road ahead.

2.20 Summary of the chapter and the road ahead

In this chapter the term *adherence* was discussed in detail. Background was given regarding the importance of adherence as well as the impact and cost of non-adherence on health-care systems across the globe. Adherence was defined and the use of other terms associated with adherence was discussed and the preferential use of the term adherence clarified. The role of the pharmacist in adherence came under the spotlight and the South African health-care system was briefly explained in the context of this study. The important role and the impact of the South African Pharmacy Council on the practice of pharmacy in South Africa were discussed. The official document of the SAPC, Good Pharmacy Practice in South Africa was investigated as substantiation of the scope of practice of the South African pharmacist. Special attention was given to the role of PC in the South African context. PC was defined and discussed and the practice of PC across the globe and in South Africa discussed.

From the above-mentioned discussion the impact and complexity of medication adherence as a universal problem are clearly to be seen. The pharmacist as part of the Health-Care Team can make an important difference, as the pharmacist is most likely the last person of the health-care system that the patient interacts with, before he/she returns home with an intention of action. It may be most comforting, admirable and even flattering to the pharmacist when his/her role in medication adherence according to researchers, research projects, textbooks, Pharmacy Schools of training and many more resources are spelled out to him/her. It can be concluded that the improvement of patient compliance, if facilitated by the pharmacist, is a very important and an essential part of pharmaceutical care, as it fits the scope of the South African pharmacist and is thus part of his/her responsibility as a pharmacist.

In the following chapter, Chapter Three, the methodology of the research method used in this study, namely Interactive Qualitative Analysis (IQA) will be discussed in detail.

CHAPTER 3: METHODOLOGY

3.1 Introduction

In the previous chapter, Chapter 2, a literature review was done providing background for the reader about the importance of medication adherence and the possible role of the pharmacist in this process.

In Chapter 3 the unique IQA process as well as the tools to use in IQA studies are explained and described. The results are presented in Chapter 4. Examples of the tools such as tables, diagrams etc. are presented in this chapter. The reader will be able to experience and distinguish between the different phases of the IQA methodology without the additional challenge of trying to understand the contents of the tables and diagrams.

To assist the reader a visual representation of how the chapter is organised follows:

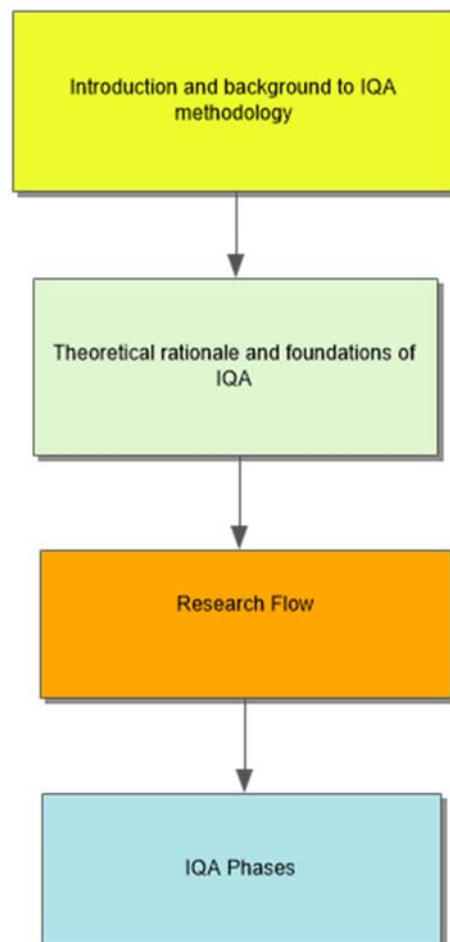


Figure 3.1: Schematic layout of Chapter 3

3.2 Background to IQA methodology

The authors Northcutt and McCoy (2004) can be considered as the founders of the IQA method. The authors indicated that the focus of the book was the use of systems theory for the construction, interpretation and comparison of mind maps or representations of the way individuals or groups understand a phenomenon. IQA as a qualitative methodology grounded in systems theory whose primary purpose is to present the meaning of a phenomenon in terms of elements (affinities) and the relationships among them (Northcutt & McCoy, 2004:xxi). IQA makes use of the traditional ethnographic tools of observation and interview, but combines these ethnographic tools with other tools borrowed from market research such as the focus group. IQA not only focusses on techniques of field work (focus groups) but also recognises design, data collection and analysis (the A in IQA) as being part of interpretation. IQA attempts to integrate and reconcile some of the disconnections in the theorizing about the purposes and methods of qualitative research.

The IQA represents a contextualized approach to a problem under investigation according to Northcutt and McCoy (2004: xxii) and describes a detailed applications-orientated, systematic process by which data, analysis and interpretation are integrated into a whole, and this is the process that was applied by the researcher.

3.3 Background of IQA research design

IQA's research design provides a series of tools, for example to help with the articulation of the problem, to identify constituencies (focus groups) and to formulate a research question applicable to the problem statement. The process of recursion is used and each step is addressed repeatedly until the researcher is satisfied with the answers to the questions that have been raised (Northcutt & McCoy, 2004:61). The IQA research design is a motion containing a vague problem or concern or observation that needs further exploration. The design now follows an anti-clock wise cycle to the identification of the people who have something meaningful to say about the problem. Ambiguity is "characteristic" of this early phase of the research flow according to Northcutt and McCoy (2004:46) and the design deals with the ambiguity. Through the recursive nature of the IQA Research Design cycle the ambiguity is reduced with every recursion until a well-thought through result is presented. The final product of the IQA Research Design Phase is the Focus Group Warm-up Exercise that will be discussed later in this section. (Northcutt & McCoy, 2015:14).

3.4 Theoretical rationale and foundations of IQA

The position and place of the IQA in the "paradigm wars" are discussed in the following section.

3.4.1 The place of IQA in the “paradigm wars”

Northcutt and McCoy (2004:14) suggested that IQA strives to represent a balance with respect to the ideological dimensions of the research paradigms that have already been introduced. In the following section the place of IQA in the two paradigms of post-positivism and postmodernism is discussed. The section ends with a discussion of the IQA's concept of rigour.

3.4.1.1 Paradigms

The paradigm construct was developed by Thomas Kuhn in his book: *The Structure of Scientific Revolutions* (1970). A paradigm, according to Kuhn (1970:175-176), “stands for the entire constellations of beliefs, values, techniques and so shared by the members of a given community” as well as “a paradigm is what the members of a scientific community share and, conversely, a scientific community consists of men who share a paradigm”. In other words, researchers from different paradigms or different epistemologies cannot directly confront each other's viewpoints because each paradigm originates from different values and perceptions.

Northcutt and McCoy (2004:2) expressed their view on the subject of the paradigm wars and compared it to the horns of a bull where each intellectual community “choose[s] one horn of a dilemma or the other and try to gore the other side with it. The authors rather chose the IQA to “go through the horns of the dilemma, not so much by compromise but by a reconciliation based on a careful analysis of the contribution of both schools of thought” (Northcutt & McCoy, 2004:2).

The two schools of thought differ on some important dimensions and a brief discussion of each dimension as well as the “location or position” of the IQA in each of the dimension follows:

3.4.1.2 Beliefs and values: The place of IQA:

The dimensions are divided into beliefs and values according to Northcutt and McCoy (2004:03).

3.4.1.2.1 Belief 1: Relationship of knowledge and power

Foucault suggested in his book, *Discipline and punish: The birth of the prison in 1977* (cited by Northcutt & McCoy, 2004:3) that knowledge is more than a result of power relationships than an antecedent. Foucault argued, according to Northcutt and McCoy, that knowledge is “stratified” by power relationships as seen in institutions where regimes are to be found that operate to legitimate knowledge. In other words, power and knowledge are linked to institutional regimes. Legitimate knowledge is influenced strongly by how power is distributed across institutional or other social structure.

- The place of the IQA in the relationship of knowledge and power

The IQA presumes, according to Northcutt and McCoy (2004:16), that knowledge and power are largely interdependent. In other words, power influences which knowledge is determined to be relevant and irrelevant, important and unimportant. The methodology of IQA reflects this assumption in its conception of *constituencies* as an important component of the research design phase and also by including planned comparisons of the conceptual maps (*mind maps*) among constituencies. One of the two criteria for selection of a constituency is the *degree of power* that a constituency has over the phenomenon to be investigated.

3.4.1.2.2 Belief 2: Relationship of the “Observer” and the “Observed”

The very act of observing has at the very least a potential for changing the nature of what we want to observe. The Hawthorne Effect refers to a set of surprising results in Elton Mayo’s 1927 study of worker productivity in Western Electric’s Hawthorne plant: productivity increased despite obvious degradation in the physical surroundings. According to Street (cited by Northcutt & McCoy, 2004:4) it is, however, only recently that the Hawthorne study results have been interpreted as the result of a fundamental relationship between observer and the observed rather than as a problem in experimental control or a lack of proper operationalization.

- The place of the IQA in the relationship of the “Observer” and the “Observed”

IQA presumes that the observer and the observed are interdependent. Many qualitative studies, while exposing a desire to capture the meaning of a phenomenon from the subject’s point of view, rely on methods of *data collection* and *analysis* that are positivist in that the terms used imply a separation between the subject of the research and the researcher. IQA begins by challenging two common assumptions of qualitative research, namely that, firstly, data collection is separate and distinct from analysis and secondly that only the researcher is qualified to *interpret* the data (Northcutt & McCoy, 2004:16).

3.4.1.2.3 Belief 3: The object of research

Husserl 1965 borrowed Kant’s distinction between *noumenon* and *phenomenon* (as cited by Northcutt & McCoy, 2004:4). It serves as the distinction between realism and idealism or the ontological, and distinguishes between phenomenological approaches and more optimistic ones. Phenomenology as described by Merleau-Ponty (cited by Northcutt & McCoy, 2004:04) privileges the nature of socially-constructed meaning in its focus on an inventory of consciousness.

- The place of the IQA in the object of reasoning

The object of research in IQA is the phenomenon rather than reality itself. IQA therefore uses *distance from the phenomenon* as the second of the two criteria for *constituency* selection and formal comparisons among constituencies. Furthermore the use of group processes as a data-collection device presumes that the researcher can gain useful insights into socially constructed reality as reported by members of the group, while the use of follow-up interviews is designed to both elaborate and contrast individual meanings to those of the group (Northcutt & McCoy, 2004:16).

3.4.1.2.4 Value 1: Primary logical operation

Induction and deduction are the two logical operators of research and different understandings of how research should be conceptualized (and therefore carried out) depend on one more than the other. Polkinghorne (cited by Northcutt & McCoy, 2004:4) links deductive reasoning to positivism by arguing that under the rules of positivism, induction is less valid than deductive statements because they represent only approximations. More phenomenologically orientated researchers (those who are more interested in the *lived experience* than behaviour *per se* or meanings defined by or attributed by the researcher) are prone to make much greater use of induction. The classic work of Glaser and Strauss (1967) (cited by Northcutt & McCoy, 2004:4) conceptualized “grounded theory” and the reliance thereof on induction.

- The place of the IQA in primary logical operation

IQA insists that both deduction and induction are necessary to the investigation of meaning according to Northcutt and McCoy (2004:16). Participants themselves are first asked to induce categories of meaning (induction), then define and refine these (induction and deduction) and finally to investigate deductively the relationship of influence among the categories. These three stages of data production/analysis correspond to the three formal classes of analysis or coding: *emergent*, *axial* and *theoretical*.

3.4.1.2.5 Value 2: Level of description

Level of description is the extent to which description is contextualized, according to Northcutt and McCoy (2004:5). Attempts to understand meaning must first be based on description and next that description must be highly contextualized or situated within a particular life experience. Decontextualized (something in isolation from its usual context) descriptions are viewed with suspicion.

- The place of the IQA in the level of description

IQA contends that decontextualized descriptions are useful and possible as long as they are backed up or grounded by highly contextualized ones, and as long as the process by which the text was decontextualized is *public, accessible and accountable*. IQA admits the danger of de-contextualisation and abstraction. There is a difference between research and storytelling and it is the researcher's responsibility to help the reader understand what the story is about and what it means in some larger context (Northcutt & McCoy, 2004:17).

3.4.1.2.6 Value 3: Degree of abstraction

The desired degree of abstraction is a paradigmatic dimension closely related to both level of description and primary logical function. Robert Hughes 1988 (as cited by Northcutt & McCoy, 2004:5) provides insight into the use of abstraction. Hughes speaks of the abstractions in a particular context that is the history of the convicts who founded Australia. He examines "*The System*" that was an abstraction itself for the system of policies and, procedures that resulted in the punishment and deportation of thousands of convicts to Australia. He spoke of abstraction in a particular context (the punishments of convicts, characteristic of *The System*) but it seems fair to ask the extent thereof where a paradigm reduces its objects to abstractions. The previously mentioned dimensions of *relationship of the observer to the observed* and the relationship of knowledge to power come to mind, described by Northcutt and McCoy (2004:6) as follows: "Is not the person whose ribs are beginning to show white as the flesh is scourged away at the very centre of the phenomenon of flogging? Should an examination of flogging give voice or the other prisoners who were forced to watch the ritual while silently thanking God it is not they who being lashed? What about the mob that gathers, some of whom munch on small meat pies bought from the vendors even as bits of bloody flesh fly through the air to land almost at their feet? What about the man who administers the punishment, or the person who gave the order, and set the number of lashes? Or what about the provincial judge who provided the authority? Whose voice will be privileged?" (Cited by Northcutt & McCoy, 2004:6).

All these parties or - in the language of IQA - constituencies, have been listed in a rough order in terms of their *distance from the phenomenon* from closest to most distant, as well as in terms of *power over the phenomenon* (flogging), they are again listed in the reverse order; a relationship between power and knowledge as a modest extension to the ideas that were first articulated by Foucault (as cited by Northcutt & McCoy, 2004:6).

This relationship is important because it determines to some extent the questions the researcher asks about the phenomenon. One researcher may choose to study the *constituency* of the lower

classes while another may choose to study the constituency of the convict him or herself. Some researcher may even study the meaning of hanging as reflected in official documents or statistics while another researcher might be interested in analysing how hanging was related to other social constructs. Northcutt and McCoy (2004:7) stipulate that the value placed on abstraction is a “marker or a flag for the value placed on the purpose of theory in research”. Some researchers may deliberately refrain from theory testing and generation or other may embrace theory testing and generation as can be seen with Grounded theory.

- The place of IQA in the degree of abstraction

IQA is favourable to theory both from the point of view of inducing theory and testing it as a result of IQA’s stance previously discussed – pro-decontextualization and both induction and deduction (Northcutt & McCoy, 2004:17). The *mind map* of a group or an individual is a theory by classic definition (Campbell & Stanley, 1963, as cited by Northcutt & McCoy, 2004:7): “a set of relationships from which hypotheses can be deduced”. The theory, however, is a theory in perception or the mental model of a group or an individual with the respect to a *particular phenomenon*, rather than a theory imposed by previous findings or a researcher’s own theorizing. IQA chooses not to call this representation a “theory” primarily because we have discovered that the term creates a roadblock to communication although it fits Campbell and Stanley’s definition perfectly according to Northcutt and McCoy (2004:17).

3.4.1.2.7 Properties of rigour

The outcome of the above-mentioned interaction of the three beliefs and three values is, according to Northcutt and McCoy (2004:17), one’s own definition of rigour or the truth value of research. According to the conventional paradigm the following criteria are the properties of trustworthiness:

- **internal validity:** “The extent to which variations in an outcome (dependent) variable can be attributed to controlled variation in an independent variable” (Lincoln & Guba, 1985:290);
- **external validity:** “The approximate validity with which we infer that the presumed causal relationship can be generalized to and across alternate measures of the cause and effect and across different types of persons, settings and times” (Lincoln & Guba, 1985:291);
- **reliability:** Synonymous with the words “dependability, stability, consistency, predictability, accuracy (Lincoln & Guba, 1985:292); and

- **objectivity**, which is usually played off against subjectivity, according to Lincoln and Guba (1985:294). (Subjective refers to what concerns or occurs to the individual subject and his experiences, qualities, and dispositions while objective refers to what a number of subjects or judges experience – in short the phenomenon in the public domain.)

When applying these conventional paradigmatic or positivistic paradigmatic criteria to the “naturalistic paradigm” or constructivist paradigm and in the light of postmodern thinking, it is concluded that they are inappropriate according to Lincoln and Guba (1985:294). They suggested the following four terms to be the “naturalist’s” equivalents for the conventional terms:

- **credibility** substitutes internal validity;
- **transferability** substitutes external validity;
- **dependability** substitutes reliability; and
- **confirmability** substitutes objectivity.

A final property of qualitative or naturalistic inquiry was added by Lincoln and Guba (1985:327) namely **reflexivity**. The suggested that the reflexive journal is to be kept as a tool to indicate the extent of the inquirer’s biases which may have influenced the outcomes.

Trustworthiness can be thought of as the ways in which the qualitative researcher can ensure that confirmability, dependability, credibility and transferability are evident in their research (Given, 2008:895). Trustworthiness also includes the provisions of credibility to the writing, when the researcher informs the reader of the research processes. (Saldana, 2011:136). Credibility can be established and reported through several ways, e.g. citing the key writers of related works in the literature review, specifying the particular analytic methods the researcher employed, through corroboration of data analysis with the participants themselves, through the description of how the data were triangulated and researches can provide evidence by quoting participants directly by including field notes from all the data (Saldana, 2011:135).

- The place of IQA in properties of rigour.

IQA positions itself in the middle between the objective, internally valid, externally valid and reliable side and the confirmable, creditable, transferable, dependable and reflexive as per Lincoln and Guba (1985:292). Northcutt and McCoy (2004:17) point out that they do not disagree with Lincoln and Guba’s ways of thinking about rigour but they contend that some of the traditional concepts such as validity and reliability are still useful concepts even if they are described in other words. The operational definition of IQA of *internal validity* is: “The extent to which a System

Influence Diagram (mind map) is consistent with the individual hypothesis comprising it” and the IQA definition of *external validity* is: “The extent to which mind maps constructed by independent samples of the same constituency on the same phenomenon are similar” (Northcutt & McCoy, 2004:17).

Concerning *reliability (or dependability)* Northcutt and McCoy (2004:1) stated that they presented the same issue statements - a description of the phenomenon to be analysed - to succeeding cohorts of doctoral candidates for several years and “the mind maps so far are distinguished more by their similarity than their difference in terms of both the elements and their relationships among elements”. The principles according to Northcutt and McCoy support constructs such as credibility, transferability, and dependability, while highlighting the concepts of validity and reliability through public, assessable and accountable procedures.

3.4.1.2.8 Ontological and epistemological bases of IQA

The above-mentioned elements describing what research is and setting the IQA’s “ideology of research” are much more than a simple list but interact with each other in meaningful ways. The *ontological base* is formed by the elements of one’s *belief system* and they are

- The relation of knowledge to power,
- The relation of the observed to the observer, and
- The object of research or the “thing” to be investigated.

Van Biljon *et al.* (2015:439) state the following: “The ontological position of IQA is consistent with a postmodern critical paradigm and acknowledges the power relations between the researcher and the participants; the participants and not the researcher are regarded as authorities on the *role pharmacists in medication adherence* under investigation” (words in italic are the researcher’s own addition).

This forms the basis of the system of *epistemological values* of the preferences for “ways of knowing”. Again it consists of three elements and they are:

- level of abstraction,
- level of description, and
- primary logical operation.

Van Biljon *et al.* (2015:440) state that “the epistemological basis of the IQA is social constructivist as it recognises that people know their world through the social construction of meaning. Both deduction and induction are considered necessary to the investigation of meaning and therefore participants are asked to induce meaning and then to define, refine and investigate the relationship of influences among the categories”.

In the following section the IQA’s position on rigour and qualitative research will be presented.

3.4.2 Rigour and the nature of qualitative research.

The ‘beliefs’ and ‘values’ mentioned in the previous section, interact to form the seventh element namely “rigour”. The meaning of rigour is very personal and depends on the ontological system and the epistemological system of the researcher (Northcutt & McCoy, 2004:18).

IQA has a very specific position regarding rigour. “IQA research is an activity that answers any one of the three possible research questions about systems”, according to Northcutt and McCoy (2004:38). IQA has a distinct position on the meaning and utility of rigour in qualitative research according to Northcutt and McCoy (2004:38). Rigour as it is used in QIA refers to *procedures for both data collection and analysis* that:

- are public and non-idiosyncratic,
- are replicable within reasonable bounds, and
- do not depend (especially for analysis) on the nature of the elements themselves. Put in another way: two different analysts presented with the same set of focus group data will produce systems representations or mind maps that are topologically identical by adhering to the rules for rationalization regardless of the analyst’s biases or the meaning of the elements. In other words, two different analysts presented with the same set of focus group data will produce system representations that are topologically identical by adhering to the rules for rationalization regardless of the analysts’ biases or the meaning of the elements. The authors came to the conclusion that rigour in qualitative research is achievable, it is relevant and a good thing (Northcutt & McCoy, 2004:338).

IQA allows the “subjects” of research to *identify* both the elements and relationships among the elements themselves, but also through application of rules for rationalization, along with some guidelines for visual representations, to produce three different versions of each system namely:

- Cluttered representations that are high in complexity but low in simplicity;
- Uncluttered representation that is high in simplicity but low in complexity; and
- Clean representation that is high in simplicity and the complexity is only presented in the background (Northcutt & McCoy, 2004:38).

Systems are discussed in the following section and first some basic systems theory is considered. The researcher very briefly introduces the concept of the system to the reader because the IQA method is based on the concept of systems.

3.4.3 Understanding systems

Systems have two components and they are elements and relationships amongst the elements. The elements may be physical objects, mathematical constructs or for the purpose of this qualitative study, categories of meaning (Northcutt & McCoy, 2004:27).

Understanding a system according to Northcutt and McCoy (2004:28) means the following:

- Identifying the elements of the system;
- Describing the relationships among the elements;
- Understanding how the elements and relationships dynamically interact to result in different states of the system which implies;
- Interpretation: What is the nature of the system;
- Intra-systemic inferences: What are the logical effects of changes of state of some element on another? and
- Extra-systemic inferences: Analysing the effects of outside influences on the system.

If only one system exists then only two research questions are possible:

- What are the components of the system?
- How are the components related to each other?

If there is a minimum of two systems, then a third question can be asked:

- How do the systems compare? (Northcutt & McCoy, 2004:28).

The questions are in a requisite sequence and should be answered in that sequence.

Research, according to Northcutt and McCoy (2004:28), is any activity that can answer at least one of the three overarching research questions. Once the elements of a system are defined and once the nature of the relationships among the elements (meaning or direction of the arrows) is defined, systems differ primarily only in their structure (systems topology), which is composed of two features namely branching and recursion (feedback loops).

Elements can be called relative drivers and outcomes. A driver is an influencer or a relative “cause” and has more arrows going out than in and an outcome in the converse. Primary drivers have arrows out but none in (influencer) and primary outcomes have arrows in but none out (result or outcome). Secondary drivers have both arrows in and out but relatively more arrows going out than coming in and again is a secondary outcome the converse (Northcutt & McCoy, 2004:32).

Systems are organized or rationalized according to different sets of rules for the purposes of research. A zone (topological zone) is a region of a system in which the elements have similar characteristics of influence. There are usually four topological zones:

- Primary drivers are fundamental sources of influence with only arrows out and none in;
- Secondary drivers are influenced by primary drivers but elements in this zone are nevertheless relative causes;
- Secondary outcomes are influenced by secondary drivers but in turn influence the primary outcomes; and
- Primary outcomes are strictly outcomes and these elements have arrows going in but none going out (Northcutt & McCoy, 2004:33).

The topology of the system refers to the pattern of the links among elements in the system. As long as the pattern of links is not changed or broken, transformations to a system do not change their essential topological character.

3.4.4 Discussion of rationalization

Rationalization in IQA refers to “a set of rules, independent of the nature of the elements of the system, by which elements are first sorted into topological zones and then connected with a minimum number of relationships consistent with the data” (Northcutt & McCoy, 2004:37). The goals of rationalization are as follows:

- Comprehensiveness: All elements relevant to the phenomenon are identified;
- Complexity: The system should represent fairly the complexity of the phenomenon represented by the degree of interrelationships among elements;
- Parsimony or simplicity: The principle that “all other things being equal, the simpler of two representations is the better and good systems are successful trade-offs between complexity and parsimony; and
- Visual interpretability: The final representation in IQA is a picture or a diagram.

Rationalisation does not disturb the basic topology of the model and does not degrade the essential nature of the system although some representations can look totally different.

3.4.5 IQA systems

IQA systems are social systems and according to Northcutt and McCoy (2004:40) are defined as systems in which human interpretation of meaning is involved. Social systems are also composed of elements and relationships. The relationships of social systems are those relationships of perceived cause and effect or influence among the elements. IQA systems describe both the elements and the relationships of the social system in such a way as to describe the patterns of influence among the elements. The product of an IQA study is a visual representation of a phenomenon prepared according to rigorous and replicable rules for the purpose of achieving complexity, simplicity, comprehensiveness and interpretability (Northcutt & McCoy, 2004:41).

3.4.6 The researcher’s IQA “footprint”

Northcutt and McCoy (2004:44) use the example of a person stepping on fresh virgin soil making footprints as he/she walks and thus argues that the responsibility of the researcher is threefold:

- The researcher must interpret;
- The researcher must ensure that the ground of interpretation provides as much epistemological traction as possible; and
- The researcher must tread softly.

The moment the very first questions regarding the “problem” enter the mind of the researcher, the tracks of the researcher will start to become visible on the new parcel of land. IQA provides a set of data “collection” and “analysis” protocols that are designed to minimize the erosion caused by the researcher himself. A framework is provided and the participants have a great deal of freedom,

provided by the researcher in consultation with knowledgeable participants. The participants themselves perform the first steps of analysis by organising their focus group discourse in categories of meaning called affinities and the participants themselves take the analysis further by presenting their own perceived relationships of influence among the affinities. Thus the influence of the researcher is greatly reduced and the researcher's bias reduced to the minimum. Thus the first responsibility of the researcher is to design the process and create the environment that will invite the group of participants, all members of the same selected constituency, to produce the most "data" while minimising the influence of the process on the content of the data (Bargate, 2014:12). The searcher becomes the facilitator and is not the designer anymore, by teaching the group members the process and guiding them to generate and analyse their own data with minimal external influence from the researcher (Northcutt & McCoy, 2004:44).

3.4.7 Systems elements or affinities

The IQA data-collection and analysis techniques originated from Total Quality Management (TQM) techniques, according to Northcutt and McCoy (2004:81). TQM was designed to capture knowledge from organizational members to solve problems and improve industrial processes. The very important TQM assumption that the people closest to the job, understand the best what is wrong and how to fix it, is of importance for IQA. IQA data-collection techniques assist the members of a group who are close (distance) to a phenomenon of interest in describing and labelling their experience. The intended outcome of the data collection is either to produce an individual "theory of perception" or a "conceptual map" in the case of an individual interview or a collective (composite) conceptual map in the case of a focus group or all of the participants in the IQA interview. Such a conceptual map is a systems representation of how a person or a group understands the particular problem. The system consists of affinities or categories of meaning and the perceived perceptual relationships among the affinities according to Northcutt and McCoy (2004:81).

3.4.8 Affinities and variables

Affinities are similar to the quantitative concept of **variables** according to Northcutt and McCoy (2004:82) and only to a certain extent.

Affinities and variables are both homogenous as they are reflections of one thing or a construct. Both have a range and an affinity must have a range of meaning in order to be useful. An affinity as a variable must have, in the limits of practicality, only one unit of analysis. In other words, an affinity is for example about people, apples OR alligators but not people, apples AND alligators according to Northcutt and McCoy (2004:82).

There are also differences between affinities and variables. Firstly, affinities are “looser” than variables, but more “robust” and do not have many “problems” with the constraints of the strict rules of operationalisation and measurability. Variables have a limitation created by the need to operationalize and variables may be lesser signifiers in that they contain too little of the construct to be significant or too much of other constructs that have little to do with the signified. Affinities tend to be richer and more meaningful because they are constructed of the words and thoughts of those close to the phenomenon of interest (Northcutt & McCoy, 2004:81).

Secondly there is the ability of affinities to represent dialectical unities when in a systems understanding of relationships in contrast with variables that are most of the bipolar monotonic constructs according to Northcutt and McCoy (2004:83).

3.4.9 IQA and theoretical coding

The purpose of the IQA is to draw a picture of the system by means of the System Influences Diagram (SID) that is a representation of the perceptual terrain or the mind map of a group with respect to a phenomenon that was presented by the issue statement. The SID is a picture that is drawn using a set of rules for rationalization as a summary of the theoretical codes called an Interrelationship Diagram (IRD) as produced by the respondents. Theoretical coding, is according to Northcutt and McCoy (2004:14), aimed at ascertaining the perceived cause and effect relationship (influences) among all the affinities in a system.

All possible direct links among affinities are investigated by developing hypotheses grounded in the data. IQA provides the participants with a formal protocol to determine whether or not there is a direct influence between every possible pair of affinities in the system and if so the participant determines the direction of the influence. The goal is to identify the underlying (mostly hidden) structure of the group mind map which is then summarized in a SID (Northcutt & McCoy, 2015:27).

3.4.10 Relationships between affinities.

Between any two affinities A and B, there are only three possible relationships: either A directly influences B, or B directly influences A, or there is no direct influence between A and B. The *Rules for Hypothesizing* according to Northcutt and McCoy (2015:21) are summarized as follows:

For any 2 affinities A and B, either

$A \rightarrow B$ (A influences B)

$A \leftarrow B$ (B influences A)

A <> B (No relationship)

The participants do not judge the strength of the relationship but merely the existence as well as the direction of the relationship.

3.4.11 Pareto Principle and the Pareto Protocol

The Pareto Principle is named after the 19th century economist Wilfredo Pareto (1843-1913) who wrote of the “trivial many and the significant few” in his analysis of productivity and economics. The principle when applied in systems terms, states that *something like 20% of the variables in a system will account for 80% of the total variation in outcome*. The essential application of the Pareto Principle is that a minority of the relationships in any system will account for a majority of the variation within the system (Northcutt & McCoy, 2015:34, Northcutt & McCoy, 2016d).

IQA uses the Pareto rule of thumb operationally to achieve consensus and analytically to create a statistical composite. The total number of number of “votes” according to Northcutt and McCoy (2015:34) of each relationship is calculated and the cumulative percentage is then calculated for each relationship. The cumulative frequencies have two purposes:

- To determine the optimal number of relationships comprising the composite system (fewest number of relationships that presents the greatest amount of variation); and
- To help resolve ambiguous relationships which are relationships that attract votes in either direction.

The Pareto Protocol with Min/Max criterion is provided as a protocol to construct a composite Systems Influence Diagram (SID) from individual interview Affinity Relationship Tables (ARTs) because individual respondents may have defined relationships between affinities in a system differently, and may according to Northcutt and McCoy (2015:33) in fact disagree about the direction of a relationship. As only one relationship could be used in the Affinity Relationship Table (ART), the relationship with the highest frequency was used in the SID Assignments Protocol. The other relationship might have a significant impact on the system and was thus reconciled according to the Pareto Protocol. (Northcutt & McCoy, 2004:331).

A detailed summary of the Pareto Protocol analysis can be found in the unpublished summary of the methodology of the IQA in Annexure A: Overview of Interactive Qualitative Analysis Process that was written by Northcutt and McCoy in 2015. The reader is requested to note that other unpublished manuscripts of Northcutt and McCoy were used by the researcher. These manuscripts are draft manuscripts of the latest and as yet unpublished book by Northcutt and

McCoy and the researcher was given permission by Danny McCoy in August 2016 to use the manuscripts (Northcutt & McCoy, 2016d).

3.4.12 Selection of IQA as methodology for this study

The researcher wanted to conduct a qualitative study where the perceptions of South African pharmacists regarding their role in medication adherence could be investigated. The researcher was interested in the perceptions of the participants with as little researcher bias as possible. As this is the first study in South Africa investigating the pharmacists' own perception in their own words, the IQA method was chosen. The affinity write-up as well as the axial write-up (discussion follows later in the chapter) in the own words of the participants is also a source of data and information for future studies. The visual representation of the perception as a mind map as well as the influences or relationships amongst the affinities (building blocks of the mind map) that can be compared with another mind map of other pharmacists was also considered. The IQA's techniques of fieldwork, design, data collection and the emphasis on analytical and interpretational possibilities as a result of the systematic processes were important in the selection of a methodology for the research. The IQA as method making use of various protocols and strict rigorous applications can be used in another study in the future and if the same methodology is followed, comparisons could be made, thus future research would be possible.

In this section some important theoretical aspects of the IQA as a methodology were discussed as well the reasoning of the researcher for the selection of IQA a methodology. In the following section the overview of IQA methodology will be discussed.

In the following section an overview of the IQA (Interactive Qualitative Analysis) process followed in this study is presented to the reader. A more detailed version of the theoretical methodology can be found in Annexure E: Overview of Interactive Qualitative Analysis Process. Personal permission was given by Dr Danny McCoy in an email conversation with the researcher on behalf of both authors to the use of the manuscript as an Annexure to Chapter 3: Methodology.

The researcher will describe the methodology of this study by presenting the basic theoretical ground for each phase of the research with the application of the researcher thereof.¹

3.5 Methodology for this investigation

The IQA process used in this study combines focus groups, in-depth semi-structured interviews and an electronic questionnaire to describe the perceptual system of pharmacists regarding their role in medication adherence. It is important to note that for each and every process as mentioned above, a specific protocol as well as a set of documentation was developed by the authors and followed by the researcher.

In the following section the IQA research flow of the study is discussed

3.5.1 IQA Research flow

Northcutt and McCoy's (2004) methodology was slightly adapted and employed as follows in this investigation as follows:

- Phase 1: The IQA **research design** provides a series of tools to assist the researcher in articulating the problems of interest to be investigated, the identification of constituencies (participants) that have an interest in the problem and to propose research questions from the problem statement.
- Phase 2: The **focus groups** are used to identify the elements or affinities of the system that will represent the group's experience with the phenomenon.
- Phase 3.1: The **interviews** are next and further explore the meanings of the affinities as well as their relationships in the system to be as rich and descriptive as possible. A mind-map or systems representation is developed from the interviews to describe and explain the system.
- Phase 3.2: The researcher developed a **web-based questionnaire** to determine the perceptions regarding the relationships between the affinities from a larger group of

¹ Footnote: If the reader is still in need of more information, the reader is referred to the previously mentioned book of Northcutt and McCoy. The book provides the reader with detailed descriptions, explanations, motivations and applications of the IQA as methodology. The book came with an interactive CD with a set of exercises constructed to provide the readers and students with summaries of the concepts in the book itself. The CD also contains several files with tables and documents to be used such as the "6 Affinity Relationship Table" (ART). The researcher made extensive use of most of the resources in the different phases of the study. The researcher recently made contact with one of the authors, Dr Danny McCoy and he provided more reworked and adopted versions of the original tables and documents than those used in the original book. Permission was granted to the researcher to make full and extensive use of the unpublished material.

pharmacists. A mind-map or systems representation is developed from the web-based questionnaire to describe and explain the system.

- Phase 4: The **report** and final phase allows the researcher to describe the affinities and their relationships in the words of the respondents and to make predictions or inference based on the properties of the system.



Figure 3.2: IQA Research Flow Chart for this investigation

3.6 IQA phases

The researcher guided the reader through the phases followed by the researcher's application of the method.

In the following section the first phase – IQA research design is discussed.

3.6.1 Phase 1: IQA Research design

Phase 1, the IQA research design consists of (Northcutt & McCoy, 2016b):

- Identification of the **problem** (The problem the researcher wanted to solve);
- Identification of the **constituencies** (The groups the researcher talked to);
- Identification of the **comparisons** (The groups the researcher compared);
- Identification of the **phenomenon** (The experience the researcher studied);
- Produce an **issue statement** (The question the researcher asked the constituency to get the individuals to speak out about the phenomenon); and
- Developed the **research questions** (The questions the research should answer).

As long as the recursions through the cycle were taking place there was also a recursive interaction between induction and deduction until the researcher was satisfied with the outcomes of the cycles. The recursive IQA design process is a formalized version of what is commonly called critical thinking, according to Northcutt and McCoy (2004:61).

It is important for the reader to take note that this very first stage of the IQA research was the very first aspect that was addressed by the researcher in the conceptualization of this study before any other administrative rules and tasks were completed such as the proposal.

To assist the reader in understanding of this phase of the IQA research flow, a visual representation of the IQA research design is presented in Figure 3.3 (used with permission of Northcutt & McCoy):

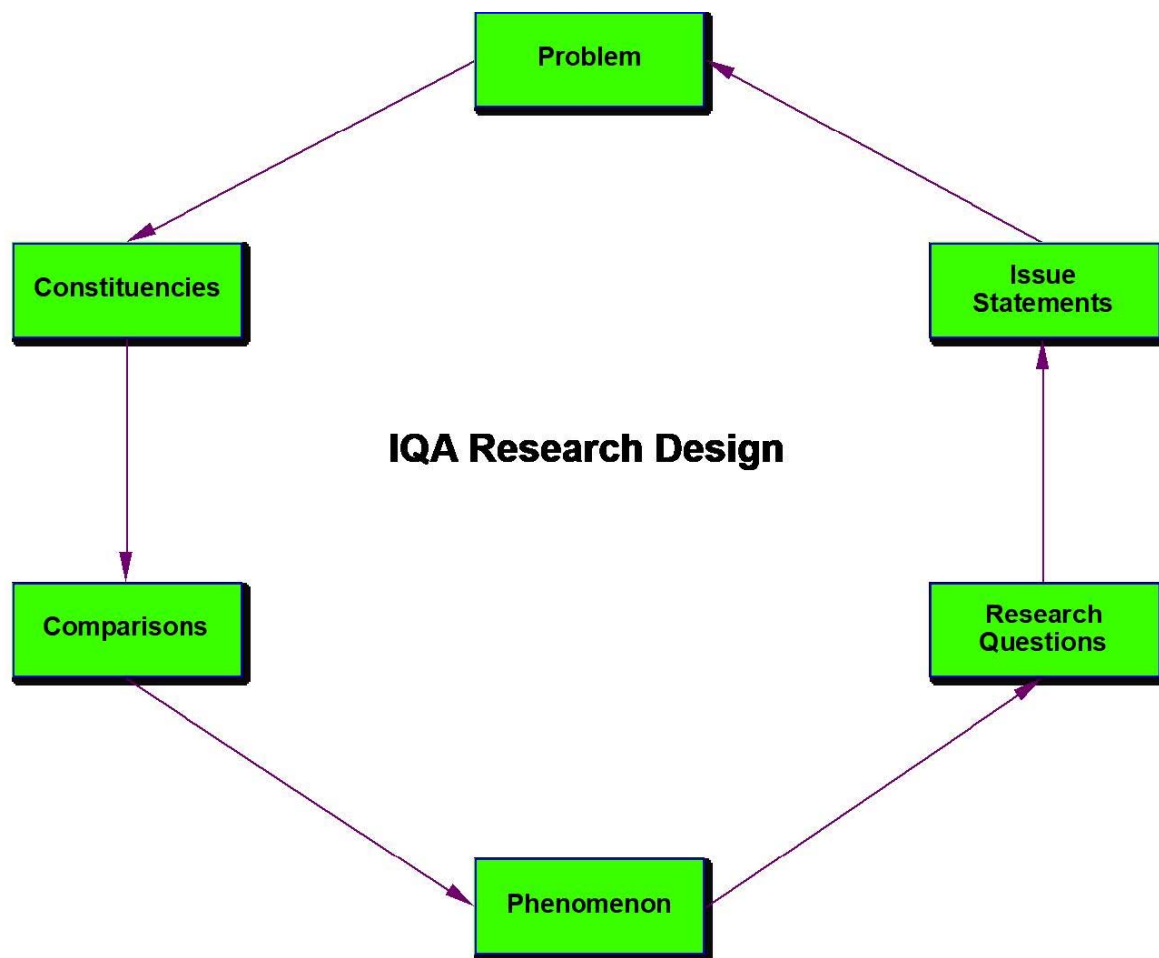


Figure 3.3: IQA research design (Northcutt & McCoy, 2015:9)

As can be seen from Figure 3.3 the IQA research design cycle consists of six elements. A brief description of each element follows. The results of the IQA research design cycle are discussed in Chapter 4 as well as in Annexure C.

3.6.1.1 The “Problem”

The researcher provides the reader with a theoretical description and then the method and actions that were used by the researcher are presented.

3.6.1.1.1 Theory of “Problem”

IQA research sets out by dealing with the traditionally called “problem”. The “problem” is sometimes a vague concern, a desire to know more about a phenomenon, an issue of interest that needs clarification in the mind of the researcher. A clear and precise solution to the “problem”

cannot be found as the “problem” has still not been clearly identified (Northcutt & McCoy, 2015:46).

This process is largely inductive according to Northcutt and McCoy (2004:73) as the researcher is largely intuitively using thought processes in contemplating the problem.

3.6.1.1.2 Method used.

The researcher followed the IQA research design protocol as developed by Northcutt and McCoy, (2015:10) to identify the “Problem”. The final product of the “Problem” can be found in Chapter 4: Table 4.1 accompanied by a discussion of the method followed.

According to the IQA research design protocol the following elements were developed in order to obtain the necessary results:

- Scenario;
- The role of the researcher, purpose of the study and readers/users of the study results; and
- Problem question, domain and potential causes or successes regarding the problem.

3.6.1.2 The constituencies

The researcher provides the reader with a theoretical description and then the method and actions used by the researcher are presented.

3.6.1.2.1 Theory of the constituencies

The data collection/analysis techniques used by the IQA methodology originated from the Total Quality Management (TQM) processes that were developed to capture knowledge from the members of the organization to solve problems. The major assumption of the TQM is that people closest to the job best understand what is wrong and how to fix it. The IQA collection of data agrees that the members of a group close to the phenomenon being studied are the best to describe and name their experiences and to point out the perceived relationship between the experiences and to produce a System Influence Diagram or a mind-map according to Northcutt and McCoy (2004:81),

To identify a group (or groups) of people who have shared an understanding of the problem, two questions need to be asked, according to Northcutt and McCoy (2004:46 & 2015:9):

- How *close* (distance) is this constituency to the problem (has *something to say* about the phenomenon) and
- How much *power* does this constituency have over the phenomenon (can *do something* about the phenomenon).

3.6.1.2.2 Method used to identify constituencies

The results of the identification of the possible constituencies are found in Table 1.2 in Annexure C accompanied by a discussion of the method used.

3.6.1.3 Comparisons between constituencies

3.6.1.3.1 The theory of “Comparisons”

The research design process seeks to identify possible comparisons of constituencies that had an understanding of the phenomenon as the comparisons generate the research questions. Because time and resources are limited, the basic question in deciding which constituencies to compare will be: “If you as the researcher can talk to only one group, who will you talk to?” (Northcutt & McCoy, 2004:78).

3.6.1.3.2 Method used to identify possible comparisons

The pharmacists were grouped into possible constituencies by the researcher according to the **distance** from the phenomenon. In other words, groups of pharmacists who spend working most of their working day upfront with patients, dispensing medicine and in interaction with patients (operational pharmacists), in comparison with other pharmacists who are in managerial positions (managerial pharmacists) who spend most of their time in a day managing the pharmacy, stock, or personnel as well as other managerial tasks and spend between less or no time at all with patients or dispensing medicine (distance from the phenomenon is either close, average or far).

The pharmacists were again grouped into constituencies that have the **power** or can do something about the phenomenon. In other words, pharmacists presumably in managerial positions who have the authority and are able to influence and change the time allocation or responsibilities of the pharmacist and pharmacy to influence the phenomenon, in comparison with a general pharmacist working in a pharmacy whose main responsibility is the dispensing of medicine to the patient (power to influence the phenomenon is either high, medium or low).

The constituencies were also grouped into constituencies that consist of pharmacists who act mostly on an **individual** basis (operational pharmacists), constituencies with **authority** over the

phenomenon (managerial pharmacists) and lastly **intermediary** constituencies in between individual constituencies or authority constituencies, who consist of a mixture of pharmacists with either high or low power over the phenomenon or who are close to or far from the phenomenon.

Pharmacists were also grouped in constituencies depending on their workplace such as private sector retail pharmacies owned by single independent owners or by corporate groups, pharmacists working in private hospitals or pharmacists working in public hospitals. It is important to notice that only pharmacists registered with the South African Pharmacy Council (SAPC) at the time of the study were selected to participate in the study.

3.6.1.4 The “Phenomenon”.

3.6.1.4.1 Method of finalizing the “phenomenon”

The results of the finalizing of the “phenomenon” is in Annexure C: Table 1.3. The following sections and sub-sections are discussed:

- Constituency and phenomenon;
- Locations of events; and
- Range of time.

3.6.1.5 Compiling the research questions.

The results of the defining of the research questions are presented in Annexure C: Table 1.3.

3.6.1.5.1 Theory of research questions

The research questions are presented in a specific order because if the first research question to identify the elements of the system was not answered, and it was impossible to identify the relationships between elements (affinities). Deduction was the primary analytical tool used in the process of generating the research questions by using the obtained information from the previous steps in the cycle (Northcutt & McCoy, 2004:46). If only one constituency was involved in the study then two and only two questions can be answered from a systems point of view:

- What are the elements that make up the Phenomenon?
- How do these elements relate in a system of influence?

The research questions can be found in Chapter 4: Table 4.1.

3.6.1.6 The Issue statement

The results of the Issue statement can be found in Chapter 4: Table 4.6

3.6.1.6.1 Theory of the issue statement

The issue statement must be presented in terms that are real to a given constituency as the issue statement is the question the researcher asked the audience (pharmacists) to speak about the phenomenon at the outset of the focus groups (Northcutt & McCoy, 2015:10). Once the research questions had been identified the next step is to formulate what question would the researcher ask the constituencies? The issue statement needs to be meaningful for each constituency and it needs to be quite simple and is always a variation of: *Tell me about the phenomenon*.

3.6.1.7 The final answer:

3.6.1.7.1 Theory of the final answer

As the IQA research design is not a linear “get-it-right-the-first-time” process, the recursive nature of the design allows for successive refinements of each of the elements of the cycle (Northcutt & McCoy, 2004:46).

The research questions were tested for adequacy according to Northcutt and McCoy (2004:46) against two criteria:

- If the pharmacist answers these research questions, what purpose will be served? (What is the problem statement addressed by these questions?); and
- Is the answer to the first question satisfactory? (Is this the problem that we should be addressing?).

The IQA research design was completed when the answer to the second question was affirmative. Usually the answer is “no” in the early recursions through the cycle so the researcher follows the cycle again until the answer is “yes”.

The final answer for the Research design protocol for pharmacists’ perception of their role in medication adherence in South Africa is presented in Chapter 4: Table 4.1 of the results.

The result of the IQA research design phase was then used to deploy the IQA research design protocol. The IQA research design protocol was used in the Focus Group Phase, namely the focus group warm-up exercise. In the following section the Second phase, the focus group phase methodology development will be discussed.

3.6.2 Phase 2: Focus Group

The Focus Group phase and all associated activities are discussed in the next section.

3.6.2.1 Focus Group Methodology

The IQA focus groups were formed with a group of individuals who shared a common experience, worked or lived with a common structure and had the same background as they were all pharmacists. They may have different opinions and experiences with the system being studied but they shared a common perspective (Northcutt & McCoy, 2015:14). The whole idea of IQA is to allow the members of a constituency to define the meaning and the range of elements of the phenomenon and to articulate how these elements are connected in their understanding of the phenomenon. (Northcutt & McCoy, 2015:18).

The IQA Focus Group Process was designed to identify the themes or affinities that the phenomenon consists of. The exercise can informally be described as “*dumping*” of all the thoughts generated by the participants of the focus group by writing the thoughts on “sticky notes”, “*clumping*” of the thoughts on “sticky notes” in clusters of similarity and “*naming*” of the clusters of thought by the group (Northcutt & McCoy, 2015:14).

3.6.2.2 The focus group design

The focus group was designed by the researcher in line with all the information presented by Northcutt and McCoy (2004:85.). It is recommended by Northcutt and McCoy (2004:87) that a typical IQA focus group should include not fewer than twelve members who have the following characteristics:

- They are information rich, possessing knowledge of and experience with the issue;
- They have the ability to reflect on the question and to transfer those thoughts into words;
- They have the time and inclination to participate in the study;
- They are homogenous with respect to important dimensions of distance and power; and
- They can respect and practise group dynamics, i.e. they are neither overpowering nor too timid to speak (Northcutt & McCoy, 2004:90).

3.6.2.3 Focus group session

A focus group session consists of the introduction and the focus group warm-up exercise that will be discussed with the results in detail in Annexure C and Chapter 4.3.

3.6.2.4 Affinities defined

3.6.2.4.1 Theory of identifying affinities

The System Influence Diagram (SID) or a mind-map is the systems representation of the group's understanding of the phenomenon. Such a system consists of categories of meaning called affinities and the perceived casual relationships between the affinities according to Northcutt and McCoy (2004:81). During affinity production, the participants (constituents) were given an opportunity to reflect upon their experiences and then express their thoughts and feelings (Northcutt & McCoy, 2015:16.)

The first step for the IQA focus group according to Northcutt and McCoy (2004:47) after the focus group warm-up exercise was the silent nominal brainstorming phase.

- Silent nominal brainstorming phase

During this phase the respondents were asked by the facilitator to write in silence as many as possible experiences, feelings, ideas, sounds, etc. they visualized, remembered and experienced during the focus group warm-up exercise on sticky notes with only one thought per card. After they had produced as many cards as possible in a certain time, all the sticky notes of all the participants in the group were pasted onto a wall of the room (*Dumping phase*) (Northcutt & McCoy, 2015:16).

- Clarification of meaning phase

The facilitator read each response out aloud for the entire group to consider, and the group came to consensus as to what the meaning of the thought on the note was. The originator of the note was given the opportunity to clarify the meaning of the note when necessary. This was the first step of the “constructing a shared reality amongst the group members through discourse” (Northcutt & McCoy, 2004: 47). The group arrived at a socially constructed shared meaning of all the notes and vagueness and possible ambiguity associated with the possible meanings of the words were reduced.

- Affinity grouping (inductive coding)

During the following exercise the facilitator asked the group to silently organize the notes with thoughts into clusters of similar meaning, the *clumping phase*. This activity is also known as inductive coding according to Northcutt and McCoy (2004:47). The participants were prevented from already naming the clusters.

- Affinity naming and revision (axial coding)

Axial coding seeks to name, reorganize, clarify and refine the affinities and is according to Northcutt and McCoy (2004:16) moving between inductive and deductive coding. This process is achieved through group discussions and consensus. The focus group was then asked by the facilitator to name each cluster of meaning, the *naming phase*. The affinities were given names or titles that accurately reflected the meaning of the affinity as determined by the participants. After the naming, revision took place where any cards that might have been wrongly clumped were moved to the correct cluster of cards. The facilitator only facilitated the process by drawing descriptions out of the group and organizing the descriptions into similar “chunks”. A good affinity description is a neutral presentation as it avoids any bias and does not lead to the respondent along a specific path (Northcutt & McCoy, 2015:18). The descriptions of the affinities were refined and narrowed by the focus group until each participant agreed that the definition accurately reflects the affinity (see Table 3.6 for a summary of the affinity names and descriptions. An example of the affinity naming process is provided below in Figure 3.4.

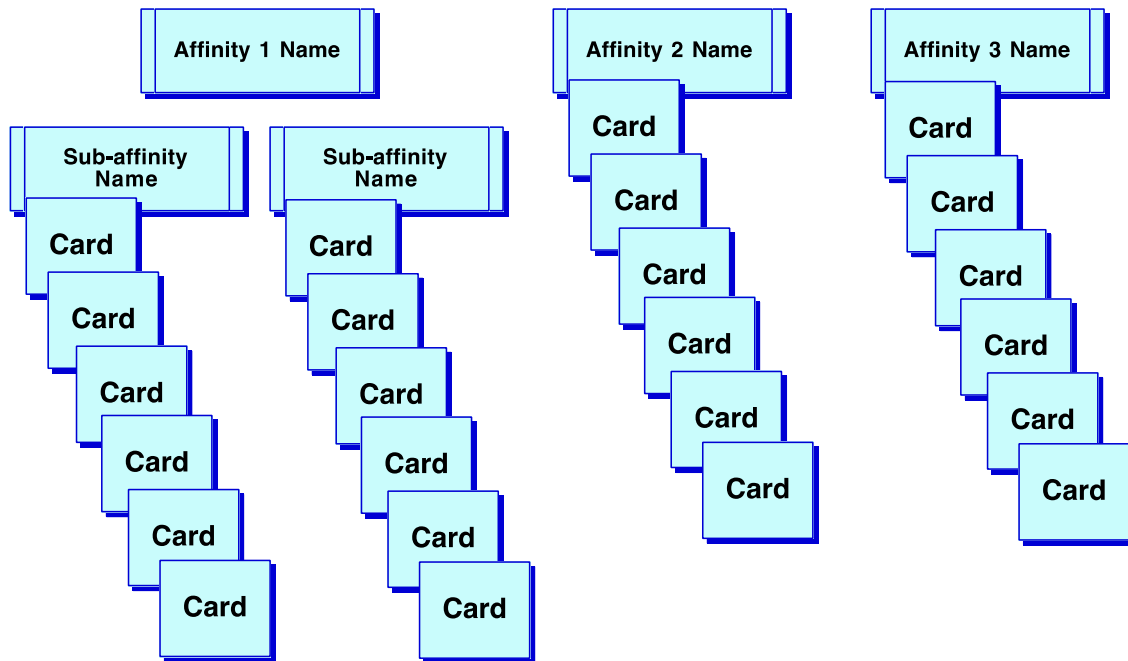


Figure 3.4: Example of affinity naming process according to Northcutt and McCoy (2015:17)

The final result of the focus group phase was to identify affinities to be used in the IQA Interview Protocol in the next phase to follow, namely IQA Interviews. The results of the focus group process are presented in Chapter 4 as well as in Annexure C

In this section the IQA focus group and development of affinities were discussed. In the following section the IQA interviews are discussed

3.6.3 Phase 3: IQA interviews and web-based questionnaire

In the following section the IQA interviews as well as the web-based questionnaire and the purpose thereof are discussed.

Phase 3 of the IQA research flow was, for the purposes of this study, divided into two sub-phases namely the IQA interviews and the web-based Questionnaire.

3.6.3.1 Phase 3.1: IQA interviews

The theory of the IQA interview is discussed in the following section

3.6.3.2 Theory of the IQA interview

The IQA interview is a semi-structured interview that is designed to capitalize on the consistency offered by a highly structured interview and the level of detail offered by open-ended or emergent interviews. The interview questions are designed and based on the affinities as developed by the focus group members (Northcutt & McCoy, 2015:20). As IQA is a systems approach to qualitative research it means that the primary purpose of the IQA is to show the phenomenon in terms of the elements (affinities) and the relationships amongst the elements. The affinities produced by the focus group are used to create an interview protocol that is used to elicit descriptions of the affinities created by the focus group and to identify and elect descriptions of the relationships among the affinities. The IQA interviews serve to add a rich, detailed and exemplified description of each affinity from the participant's point of view of affinities that is not possible with the focus group alone. The critical purposes of the IQA interviews are, according to Northcutt and McCoy (2015:20):

- To provide data representing the respondents' experience with the phenomenon;
- To help the researcher code the impact and influences of these affinities in order to create a SID; and
- To provide data representing the group's collective SID or mind map.

3.6.3.3 Selection of participants in the IQA interview.

The IQA interview, a group of individuals who shared a common experience, work or live with a common structure and had the same background as they were all pharmacists and participants in the interviews. They may have different opinions and experiences with the system being studied but they shared a common perspective (Northcutt & McCoy, 2015:14), taking the following characteristics into account:

- They were information rich, possessed knowledge of and experience with the issue;
- They had the ability to reflect on the question and to transfer those thoughts into words; and
- They had the time and inclination to participate in the study.

The selection and demographic details of the participants of the interviews are discussed in Chapter 4.4 and Table 4.5

3.6.3.4 Individual interview protocol: Theory

The IQA interview protocol is divided into two parts:

- The open-ended axial interview; and
- The structured theoretical interview.

3.6.3.4.1 Individual interview Part 1: Open-ended axial interview

The open-ended axial interview was designed to provide a rich description of the affinities by the respondents according to Northcutt and McCoy (2004:200). There are four steps in the IQA interview of which three steps takes place in the first part of the interview and the fourth step in the last. (Northcutt & McCoy (2004:202):

- Step 1. The participants were handed a list developed by the focus group and the names and descriptions of each affinity were introduced.
- Step 2: The researcher shared the focus group's definition of each affinity with the respondent and the respondent was asked to reflect on his/her personal experience of the affinity by saying: "Tell me about your experience with this". The data were used in the axial coding as well as the "write-up" of the affinities.
- Step 3: Follow-up questions and appropriate probes were used to elicit examples from the respondent's experience.
- Step 4: When the respondent had covered all the affinities, the second part of the interview commenced and the respondent was presented with the Affinity Relationship Table (ART) and asked to indicate how he/she perceived the relationships and connections between the affinities pairs (Northcutt & McCoy, 2004:203).

3.6.3.4.2 Individual interview Part 2: Structured theoretical interview

The structured theoretical interview was designed to identify the relationships between affinities. The outcomes of the theoretical interview were to be presented through the ART. When the interviewee was presented with the table of all the possible relationships between the affinities on the ART, the interviewee was then asked whether he/she believed that there was a relationship between each affinity and to explain why they believed so.

- The Affinity Relationship Table (ART)

The ART is the basis for the structured theoretical interview. The participants were presented with the ART table and were asked if they believed that there was a relationship between each of the affinities and why they believed so. Each participant was asked to determine the nature of the relationship among all possible pairs of affinities.

The final result of the Interview phase was a collection of audio transcripts, an ART table, a demographic questionnaire and informed consent forms for each participant. In this section the theory of the IQA interview consisting of the open-end axial interview and the structured theoretical interview were discussed. In the following section the web-based questionnaire will be discussed.

3.6.3.5 Phase 3.2: Web-based questionnaire

The methodology of the web-based questionnaire will now be discussed.

3.6.3.5.1 Development of web-based questionnaire

A web-based questionnaire was developed by the researcher with the purpose to capture the responses of the pharmacists of South Africa regarding their perceived relationships as well as the reasons for said relationships between the affinities. The researcher developed the questionnaire by making use of the same Issue Statement so that the affinities and definitions as developed by the focus group and also used in the individual interviews of the respondents remained the same. A definition as well as a description of each affinity appeared on the web-based questionnaire. The influences of the affinities on each other were stated and the respondent had to choose a specific direction of influence. See Annexure A for a copy of the web-based questionnaire.

The official electronic name list called “The South African Pharmacies and Pharmacists List (All provinces, fully detailed)” of all the pharmacists registered with the South African Pharmacy Council (SAPC) at the end of February 2013 was ordered from the SAPC and received in May 2013. The list entails *inter alia* the pharmacists’ unique South African Pharmacy Council’s P code as well as the email address of the pharmacist. A total of 12822 pharmacists appeared on the list.

3.6.3.5.2 Data collected

The web-based questionnaire collected data for three purposes:

- Demographic data to describe the population such as *inter alia* working environment, years of experience, age, managerial or operational positions, gender and more;
- The direction of possible relationships between affinities to produce a Combined Theoretical Code Frequency Table for the production of the System Influence Diagram (SID). The same *Rules for Hypothesizing* of Northcutt and McCoy (2015:21) to determine the direction of possible relationships that were used in the theoretical interviews were also used; and
- The respondents were asked to describe their choice of relationships amongst affinities and their responses were used in the Composite Theoretical Description (theoretical write-up).

3.6.3.5.3 Confidentiality, storage of the data of respondents and informed consent.

The unique South African Pharmacy Council P number of each pharmacist was used to create a “participant ID” that was linked to the email address of the pharmacist when answering the questionnaire. Each respondent accepted the terms and conditions and was then accepted to complete the rest of the questionnaire. The terms and conditions explained to the participant that the P number of the respondent would be requested and would be provided together with the participant’s responses to the researcher. The participants also agreed that their participation was voluntary and that the data would be stored in a controlled environment to which access is limited only to the researcher and to the key systems administrators of the Survey Company only during the collection of the data. The respondents were also informed that all the information collected from this study would be collected anonymously, kept at and stored in a safe place at the North-West University and kept strictly confidential.

The next phase in the IQA methodology is the report phase and is discussed in the following section.

3.6.4 Phase 4 IQA Report

In this section the last phase of the IQA study, namely the report, is discussed.

3.6.4.1 Background

The typical IQA report for this study’s purpose accomplishes two goals:

- Naming and describing the elements of the system; and
- Explaining relationships among elements of a system (Northcutt & McCoy, 2015:23).

3.6.4.2 IQA report: Main parts

The fourth phase or the report phase can again be arranged into two main parts namely:

- Results and analysis; and
- Interpretations and Implications.

Results and analysis are presented in Chapter 4 while interpretations and implications are presented in Chapter 5

Next the results and analysis part of the IQA Report phase are discussed.

3.6.4.2.1 IQA Report: Results and analysis

Through a rigorous use of protocols, the transcripts were coded and the system drawn. The resulting report is an Axial or Affinity Write-up, Theoretical Write-up and the presentation of the Systems Influence Diagram (SID) according to Burton (2015:58).

In the results and analysis phase raw transcripts are processed through a series of protocols designed with the purpose to identify the meaning of each affinity by telling the composite story of the constituency. This phase also produces the relationship by relationship building of the composite system while telling the group's story of how each affinity is related to the others (Northcutt & McCoy, 2015:24). The report phase's goal was to document and code the interviews to reveal the range and depth of meaning amongst individuals concerning each affinity as well as the perceived cause-and-effect relationships among the affinities (Northcutt & McCoy, 2004:237).

- Transcripts of IQA interviews

The interviews were transcribed word for word. Transcribers signed a document to ensure that the contents of the transcript as well as the interviewee's identity would be kept confidential at all times during the transcribing process. The transcript was edited by the researcher to reflect the alias of the respondent to protect confidentiality and filed electronically in a filing system. The removal of interjections such as "uhm" or "ok" that often occur in conversations was done. All names of people, pharmacies, pharmacists, medicine, products and places were removed and substituted by non-identifiable names such as Medicine A or Pharmacist B or Patient C (Northcutt & McCoy, 2004:209).

- **Axial coding**

A description of axial coding is provided by Northcutt and McCoy (2004:242) and is presented as follows: “Specific examples of discourse that illustrates or allude to an affinity.” Once the transcripts had been prepared, the researcher reviewed each line of the transcribed interviews and looked for phrases and statements that define and provide examples for a specific affinity according to Northcutt and McCoy (2015:25).

- Axial coding process: Individual Interview Axial Code Document (ACD)

The researcher used the Atlas.ti™ Version 7 computer software programme specifically developed for use in qualitative research after undergoing training in the coding and use of the programme. Each transcribed interview was imported into the programme. The structure of the interview was designed to make the axial coding step as easy as possible according to Northcutt and McCoy (2015:25). The researcher examined the particular section of the interview transcript that addresses the affinity and looked for phrases or statements that define and provide examples of a specific affinity. These examples may be symbolic or metaphorical statements concerning the affinity, clearly stated descriptions of how the affinity becomes manifested in the experience of the respondent, or proximate descriptions of other affinities in the context of the one being addressed according to Northcutt and McCoy (2015:25). Once the axial codes had been identified, the researcher noted the “quotes” consisting of keywords or phrases that belonged to the affinity by means of the program. The axial code and the associated “quote” as well as all other information related to the axial code are stored by the programme. The programme recorded the axial code, the affinity name, the paragraph of transcript that referred to the quote as well as the document name of the interview for retrieval purposes. A new unique document called the Individual Interview Axial Code Document (ACD) with the axial codes and all other information associated with the affinities for the specific interview were created, exported and stored on the computer of the researcher with the help of the Atlas.ti™ Version 7 programme. The researcher axial-coded all the interviews using the process to produce Individual Interview ACD for all the interviews that went through the same process.

- The axial coding process: The Combined Interview Axial Code Document (ACD)

Once all the interviews had been axially coded, the axial data from all the interviews were combined to create a Combined Interview ACD that represented the composite of all the individual interviewees’ experience with the phenomenon (Northcutt & McCoy, 2004:265). The Individual Interview ACD was imported into the Atlas.ti™ Version 7 programme and all the codes related to

a specific affinity from all the interviews were retrieved by the researcher into a Combined Interview Single Affinity ACD.

- **IQA Composite affinity descriptions: Affinity write-up**

The IQA Affinity write-up is a composite story of all the participants. The researcher sought to identify “what does the affinity mean?”, “what are the sub-components?” and “what is the range of meaning?” of each affinity (Northcutt & McCoy, 2015:26). Since the group is the best source of describing their experience, the experience was described in the words of the group themselves. A similar process followed to identify affinities with the focus group were followed to organise the quotes into common themes using a “Dump, Clump, Name and Organize” procedure. There are usually multiple axial quotes for a given affinity and each quote is presented in the Combined Interview Single Affinity ACD. The quotes related to an affinity were reorganised into common themes or sub affinities. These sub-affinities contained quotes that addressed a common theme describing that affinity. Multiple quotes were organized and put together to develop a composite quote. The IQA takes the stand that the researcher should have a little voice in the Results and Analysis and therefore the role of the researcher is to organize the data so that it tells the group’s story. The affinities and sub-affinities were presented to the reader without the researcher’s voice and interpretation to this story. The resulting paragraphs of quotes are made up of quotes taken from the individuals and the result is an affinity description that represents a composite story of the group as a whole according to Northcutt and McCoy (2015:27). The results of the Affinity Write-up are presented in Chapter 4.

- **Theoretical coding**

The purpose of the IQA is to draw a picture of the system namely the Systems Influence Diagram (SID) that represents the perceptual terrain or mind-map of a group or individual with respect to the phenomenon represented in the Issue statement according to Northcutt and McCoy (2015:27). The SID was drawn using a set of rules for rationalization of a summary of the theoretical codes called an Interrelationship Diagram (IRD). In the second phase of the IQA interview theoretical codes that illustrate a relationship between two or more affinities were identified by the researcher (Northcutt & McCoy, 2004:251) Theoretical coding served two purposes. The first possibility was to present an individual SID for each interviewee. The second was to produce a composite SID representative of the group as a whole. The researcher only used the theoretical coding to produce a composite SID of all the interviewees as a group.

- Theoretical Coding process: Individual Interview Theoretical Code Document (TCD)

The researcher again used the Atlas.ti™ Version 7 programme to assist in the theoretical coding of the interviews. The researcher imported each interview transcript into the programme. A possible 30 combinations of relationships between affinities emerged and the researcher used each possible relationship as a code and coded each interview accordingly. The transcript of each interview was examined for theoretical codes. Each of the interview transcript lines was reviewed looking for phrases or statements that illustrated a link between the affinities. The Atlas.ti™ Version 7 programme stored all information associated with the theoretical code such as the directionality of the relationships as well as the descriptive explanations of how the relationships worked in the respondents' words, i.e. the quotation as well as the paragraph line was stored in the document. The data were recorded in the Individual Interview Theoretical Code Document (TCD). After the theoretical coding of each individual interviewee was completed and an Individual Interview TCD had been created by the researcher and the documents stored as part of the Atlas.ti™ Version 7 programme.

- Theoretical Coding process: Composite theoretical description (theoretical write-up)

The researcher used the Atlas.ti™ Version 7 programme and all the Individual Interview Theoretical Documents and produced a Combined Interview Theoretical Code Document. The group's words were used to describe the relationship between the affinities from the Combined Theoretical Code Document. To assist with the description, the Cluttered SID was broken down into the graphical units of the relationships of a single affinity with all the others. The Cluttered SID is discussed in the following section. The same style and rules of the "axial write-up" protocol were applied. The result was a visual as well as a description of each affinity's relationship with all the other affinities in the words of the interviewees (Northcutt & McCoy, 2004: 323). The results of the theoretical write-up are presented in Chapter 4 of this document.

- **Composite System Influence Diagram (SID)**

- Theoretical coding process: Theoretical Code Frequency Table

In order to have built the composite system representative of the group it was firstly necessary to produce the Theoretical Code Frequency Table. As each interview was processed to produce the Individual Interview Theoretical Code Document, an accounting of each affinity pair relationships was tallied in a Theoretical Code Frequency Table that captures the frequency of "votes" for each affinity pair for all the members of the group (Northcutt & McCoy, 2015:27).

The results of the Theoretical Code Frequency Table are presented in Annexure C: Table 3.2.

- The Composite SID Assignment Protocol.

Northcutt and McCoy (2015:28) provided the following summary of the Composite SID Assignments Protocol. The purpose of the SID Assignments Protocol is to allow the researcher to analyse the entire set of the group's relationships identified in the Composite ART and determine the basic flow of the system from Driver to Outcome. The protocol contains four tables, the Composite Affinity Relationship Table (ART), the Interrelationship Diagram (IRD), the sorted IRD and the Tentative SID Assignments Table. The Protocol is completed by examining the number of relationships a particular affinity influences and is influenced by. The researcher examines the number of "OUT" arrows (Drivers) and "IN" arrows (Outcomes) of each affinity and the difference between the OUT and IN arrows determines if the affinity is a relative driver or an outcome. The affinities are then sorted from driver to outcome. The results of the Sorted IRD are examined to determine the tentative order of the affinities in preparations for the drawing of the Composite SID.

- The Composite Cluttered SID

As the Cluttered SID (Figure 4.12) contained all the possible links between the affinities it was comprehensive and rich and saturated with links. It made it very difficult to interpret because all the links and the explanatory power of the system becomes bogged down in the details of the relationships. The objective of the SID is a representation full of comprehensiveness and richness but on the other hand there is also a need for parsimony. To solve this richness-parsimony dialectic the uncluttered SID was developed that had all the redundant links removed (Northcutt & McCoy, 2004: 329).

- The Composite Interview Uncluttered SID

A detailed description of the development of the cluttered and uncluttered SID can be found in Northcutt and McCoy (2016a). Other information can be found in Annexure A. According to Northcutt and McCoy (2015:32), this is the way to resolve the richness-parsimony dialectic to produce the Uncluttered SID where the redundant links were removed. The Cluttered SID is extremely rich in descriptive capability but parsimony is also an objective of the SID. The Uncluttered SID has all redundant links removed and is, according to Northcutt and McCoy (2015:33), the simplest representation consistent with all the relationships contained in the IRD. The results are presented in Chapter 4.

- Pareto reconciled SID

Because individual respondents may have defined relationships between affinities in a system differently, they may according to Northcutt and McCoy (2015:33), in fact disagree about the direction of a relationship. The Pareto Protocol with Min/Max criterion is provided as a protocol to construct a composite SID from individual interview SIDs. Once all the redundant links had been removed from the Cluttered SID, the Pareto Protocol was examined to determine whether any conflicting relationships needed to be added. The conflicting relationships occurred when the same affinity pair had sufficient relationships in both directions. As only one relationship could be used in the ART, the relationship with the highest frequency was used in the SID Assignments Protocol. The other relationship might have had a significant impact on the system and was thus reconciled according to the Pareto Protocol (Northcutt & McCoy, 2004:331). IQA uses the Pareto rule of thumb operationally to achieve consensus and analytically to create a statistical composite. The total number of number of “votes” according to Northcutt and McCoy (2015:34) of each relationship is a calculation and the cumulative percentages are then calculated for each relationship. The cumulative frequencies have two purposes:

- To determine the optimal number relationships to comprise the composite system (fewest number of relationships that presents the greatest amount of variation); and
- To help resolve ambiguous relationships which are relationships that attract votes in either direction.

The Pareto Principle is discussed in more detail in Annexure E as well as in Northcutt and McCoy (2016d). The products of the Pareto Principle are presented in Chapter 4 as well as in Annexure C.

3.6.4.2.2 IQA Report: Interpretation and Implications

The second part of the IQA Report phase, namely *Interpretation and Implications*, is the last and final phase of the IQA process and can be found in Chapter 5. The IQA study proceeds from the descriptions of the affinities by the respondents to the respondents’-cause-and-effect relationships among the affinities and the system these relationships made (Northcutt & McCoy, 2015:34). The researcher described the composite system with a walk-through of the system and a description of the placement of the affinities, highlighted feedback loops, and “exercised” the model. Further predications and Interventions of the system were described as well as practical implications where solutions were provided for identified problems. The researcher returned to the literature with the section named Theoretical implications in search of other research results,

theories of thought and other sources to inform the findings (Northcutt & McCoy, 2004:302). The chapter ends with conclusions and recommendations for further studies.

- Interpretation of the system

The interpretation was done for the constituency for the system named Pharmacists' Perception of their Role in Medication Adherence.

- A walk through the system.

A brief tour through the system was accompanied by a visual one (Northcutt & McCoy, 2004:333). The uncluttered SID was used and some theoretical codes were superimposed onto each link, thus producing a Theoretical Summary SID.

- General description of the system

A general description of the composite system of the interviewees of the system followed where the system is explained in terms of the position of each affinity and the relationships thereof in relation to the other affinities.

- Feedback loops, zooming and naming

The researcher looked for the opportunity to produce different views of the system. Feedback loops were highlighted and viewed from close by (zoom in) with a view similar to that of the participant or from afar (zoom out with telephoto view) with a view of that of the researcher. In the process of zooming a name was given that substituted the names of the individual components of such a loop (Northcutt & McCoy, 2004:335). The feedback loops that are identified are given names and are briefly discussed and explained how each loop works (Northcutt & McCoy, 2015:36). Ways to escape from the negative feedback loops were discussed.

- Exercising the model

"Exercising the model" was presumed to enable the researcher to see the given conditions of the drivers and then to examine what the expected results would be. Thus a first "prospective scenario" or a forward scenario was developed. A second "retrospective or backward scenario" by assuming the conditions of the outcomes and then to examine the model to see what the conditions of the drivers could have produced these outcomes would be (Northcutt & McCoy, 2015:36). A third scenario could be where the implications of external influences that are not part of the system are tested (Northcutt & McCoy, 2004:301, 343).

- Practical implications of the model.

Possible problems were identified and the researcher provides solutions to the problems.

- Revisit the literature

The literature was revisited and the literature was also used to investigate how other studies describe the affinities developed by the focus group.

3.6.4.3 A retrospective and prospective review of the study

In the last section of the investigation the researcher employed a retrospective and prospective overview of the study with a summary and identified possible limitations of the study. Future directions by means of possible research projects are identified and a final conclusion brought this research to its end.

In the following chapter, Chapter 4 the results of this study are presented.

CHAPTER 4: RESULTS OF PHARMACISTS' PERCEPTIONS OF THEIR ROLE IN MEDICATION ADHERENCE

4.1 Introduction

In Chapter 3, the major features of the entire IQA process as well as the protocols used were described as the methodology of the IQA process. This chapter focusses firstly on the analysis of the elements of the system: Pharmacists' perceptions of their role in medication adherence and in the second part of this chapter the relationships between the elements of the system are described with quotes of the interviewees. "The role of the researcher is to organize the data so that it tells the groups story and is interesting to the reader. The researcher is tasked with combining, naming and organizing the quotes. The researcher introduces the affinity and sub affinities to the reader but avoids any temptation to add the researcher's voice and interpretation to the story. For this reason, only a few introductory sentences are written in the voice of the researcher while the bulk of the Affinity Write-up is in the words of the group" (Northcutt & McCoy 2015:26).

In this chapter the researcher reports on the results for the second group of research questions:

- What are the components of the pharmacists' perceptual system regarding their role in medication adherence in a South African context; and
- How do the above-mentioned components relate to each other in a perceptual system?

The affinities as described previously in Chapter 3 were constructed by the participants of the focus group. The affinities were then presented to pharmacists in individual open-ended axial interviews. The individual interviews were transcribed word for word and axially coded. The data from each interview were summarized in a composite of affinities, reflecting all the individuals' experience with the phenomenon.

The quotes for each affinity were organized and subgroups, or sub affinities, were identified as these subgroups contain quotes that address a common theme describing that affinity. The multiple quotes were grouped together to develop a composite quote. The researcher edited the "quotes" only for maintaining confidentiality of persons, places, names of pharmacies and pharmaceutical companies and medicine.

The affinities were described in the words of the respondents (pharmacists) because the IQA is designed to describe the perceptions of the phenomenon, or the lived reality of the respondents,

because the group is the best source of describing their experience (Northcutt & McCoy, 2004:314).

In the following section the results of the study will be presented commencing with Phase 1 of the IQA research flow.

4.2 Research Design Protocol results: Phase 1

In Phase 1 of the IQA research flow the researcher developed the IQA research design (Chapter 3.6.1). The IQA research design was completed before the onset of the rest of the phases of the IQA research flow but is considered as a result and therefor reported in this Chapter. The researcher developed the problem statement, identified the possible constituencies, developed comparisons of the constituencies, and identified the phenomenon as well as the research questions and lastly the issue statement after several incursions of the IQA research design protocol. The results can be seen in Annexure C. It is important to direct the reader's focus to the following results of the IQA Research Design Protocol.

4.2.1 Comparisons of constituencies

The respondents to the web-based questionnaire were grouped in "constituencies" during the planning of the research design based on the assumption that enough respondents will provide the much needed demographic data. The respondents had to indicate for example if they worked in the Public or Private health care sector and if they are in a managerial or operational position. Constituency F (Table 1.2 of Annexure C) were used in the focus group and interviews and consisted of pharmacists from various pharmaceutical sectors in South Africa. The initial planning was to compare the System Influence Diagrams (SID) of different constituencies as for example can be seen in Table 1.2 of Annexure C Constituency F (focus group and interviews) were to be compared with Constituency G (web-based questionnaire) to determine the similarities between of the pharmacists' from different constituencies' perceptions of their role in medication adherence. The data from the web-based questionnaire were supposed to be useful in compiling the constituencies based on the demographic information supplied by the respondents and comparing the constituencies. For example, a comparison of the System Influence Diagrams (SID) of Constituency A (Operational pharmacists from private and public pharmacies in South Africa versus Constituency H (Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa).

The responses to the web-based questionnaire were very low as only 7.53% of the total population of 12822 pharmacists responded and only about 50% of those responses (495) were complete and were useful for the study. The researcher decided not to do any comparisons

between constituencies but rather to combine the results of the personal interviews and the web-based questionnaire and developed a single but robust Systems Influence Diagram (SID) of all the respondents without making use of separate constituencies. The combined SID of this study could serve as a base against which the results of possible further future studies could be compared.

4.2.2 Research questions

In the development of the research questions as one of the results of the IQA research design protocol, the researcher investigated a single phenomenon for the different constituencies. There were three research questions and they were similar for the different constituencies. The research questions were as follows:

- What are the components of the pharmacists' perceptual system regarding their role in medication adherence in a South African context?
- How do these components relate to each other in a perceptual system?
- How do the perceptual systems of pharmacists compare in different environments in South Africa? Because there were no comparisons between constituencies, the third and last research questions was no longer possible to be answered and therefore removed.

4.2.3 Issue Statement

The Issue Statement, one of the results of the IQA research design protocol, was (see detail in Annexure C):

In your opinion, what is the role of the pharmacist regarding medication adherence in South Africa?

4.2.4 Conclusion of the Research Design Protocol

The "Final answer" or the conclusion that is the end product of the Research Design Protocol can be seen in Table 4-1 below.

Table 4.1: Research Design Protocol for Pharmacists' perceptions of their role in medication adherence in South Africa: Final answer

Final answer	
Problem:	Medicine non-adherence of patients
Constituency:	Pharmacists registered with the SAPC from as many Pharmaceutical sectors in South African as possible.
Comparisons:	Depending on response from the web based questionnaire, the perceptual system of all pharmacists registered with the SAPC from all the pharmaceutical sectors in South Africa to be compared with the perceptual system of Operational pharmacists from private and public pharmacies in South Africa.
Phenomenon:	The role of the pharmacist in the medication adherence of the patient in South Africa
Research questions:	1. What are the components of the pharmacists' perceptual system regarding their role in medication adherence in a South African context? 2. How do the above-mentioned components relate to each other in a perceptual system?
Issue statement:	In your opinion, what is the role of the pharmacist in medication adherence in South Africa?

The final result of the IQA Research Design is the Focus Group Warm-up Exercise as can be seen in Table 4-3

In the following section the outcomes of the IQA Research Design Protocol were implemented in the implementation of the IQA Focus Group Process.

4.3 Focus Group Phase 2

The IQA Focus Group Process was designed to identify the themes or affinities that the phenomenon: *The role of the pharmacist in medication adherence of the patient in South Africa*, consists of.

The basic principles and methodology of the focus group and the design of the focus group are discussed in detail in Chapter 3.6.2

The detail of the methodology used by the researcher during the focus group in phase 2 of the IQA research flow can be seen in Annexure C.

4.3.1 Results of the Focus Group

Only one focus group session was conducted and it lasted for four and a half hours including lunch and a coffee break.

4.3.1.1 Demographic data of the participants of the Focus group

Thirteen pharmacists from a total group of $n = 50$ pharmacists who were invited by means of a letter of invitation explaining the purpose of the study, volunteered to participate in the focus group on the specific date and time. The majority of participants were female, and two participants were lecturers in the academic sector. Most of the participants were in some form of managerial position within independent or corporate retail pharmacies. The demographic data of the respondents of the IQA focus group are presented in Table 4.2 below.

Table 4.2: Demographic data of participants of the IQA focus group.

Participant	Gender	Sector	Qualification	Age	Experience in Years	Position
1	Male	Academia	Ph.D.	38	13	Manager
2	Female	Academia	M.Sc. Pharm	60	37	Operational
3	Female	Retail pharmacy: Independent	B. Pharm	41	17	Manager
4	Female	Retail pharmacy: Independent	M. Pharm	35	13	Manager
5	Female	Retail pharmacy: Corporate	B. Pharm	30	6	Operational
6	Female	Hospital pharmacy: Public	B. Pharm	36	13	Operational
7	Female	Hospital pharmacy: Private	B. Pharm	57	25	Manager
8	Male	Retail pharmacy: Corporate	B.Sc. (Pharm)	64	37	Operational
9	Female	Retail pharmacy: Independent	B. Pharm	38	16	Manager
10	Female	Manufacturing	M. Sc. (Pharm)	38	14	Manager
11	Female	Locum	B. Pharm	28	6	Operational
12	Female	Hospital pharmacy: Private	B. Pharm	31	9	Manager
13	Female	Retail pharmacy: Independent	M. Sc. (Pharm)	26	1	Operational

The focus group warm-up exercise was compiled from the final answer as presented in Table 4.3 as the product of the IQA research design phase.

The focus group warm-up exercise was presented and implemented in the focus group session.

Table 4.3: Focus Group warm-up exercise

Focus Group warm-up exercise

I would like you to think for a while about *The role of the pharmacist in medication adherence of the patient in South Africa*.

In a few minutes, I am going to ask you to tell me about your experience with *The role of the pharmacist in medication adherence of the patient in South Africa*.

So let's begin.

- Please allow yourself to be as comfortable as possible.
- Put your thoughts from the day aside to allow your attention to focus on *The role of the pharmacist in medication adherence of the patient in South Africa*
- Close your eyes to increase your state of relaxation and your ability to focus on *The role of the pharmacist in medication adherence of the patient in South Africa*
- Now imagine yourself in the pharmacy dispensing chronic medicine to a patient explain to the patient how the medicine must be taken. See yourself in all the places where the pharmacist plays a role in medication adherence of the patient (long pause)
- Imagine yourself in the pharmacy during your working hours from early morning till closing time of the pharmacy (long pause)
- See all the places, events and people that influence *The role of the pharmacist in medication adherence of the patient in South Africa* (long pause)
- See yourself engaging in the activities of *The role of the pharmacist in medication adherence of the patient in South Africa* (long pause)
- Notice your surroundings. (long pause) Looking around you, take in the sights, the sounds that are associated with being in the pharmacy (long pause)
- Allow yourself to become aware of your environment with all your senses.
- Focus on what it feels like to be totally absorbed in the dispensing area of your pharmacy. Be there in your mind (long pause)
- Review all your recollections up to this moment (pause)
- Allow all these thoughts to remain calmly in your consciousness and ready to be revealed.

Thank you for allowing these valuable observations and recollections to emerge.

Please allow yourself to gently allow your consciousness back to this time and place and when you are ready, open your eyes.

Good. Thank you.

And now, with all that you remember—and that is all that you just noticed—please write down your thoughts on these cards.

Write one thought or experience per card. Feel free to record a word, a phrase, a sentence, or a picture to capture that thought ... and ... Tell me about *The role of the pharmacist in medication adherence of the patient in South Africa.*

The focus group constructed the affinities according to the protocol as discussed in Chapter 3.6.2 (The detailed method used by the researcher can be seen in Annexure C.)

The result of the focus group (Phase 2) was the summary of the affinities as well as the definition of each affinity as developed by the participants of the IQA focus group, presented in Table 4-4 below.

Table 4.4: Summary of affinities with definitions according to IQA focus group

Name	Definition
External Barriers	Factors beyond your control that determine your practice as a pharmacist.
Disposition	The pharmacist's attitude within his relationship with his patients.
Professionalism	More than professional appearance and behaviour. A way of being.
Communication Skills	Set of skills needed by the pharmacist so that all the patients understand him/her.
Information Role	Functional knowledge that the pharmacist share with the patients.
Motivational Role	All your actions in order to motivate the patient to adhere.

A summary of the information on all the sticky notes for each affinity as used in the focus group phase can be seen in Annexure C.

4.4 IQA Interviews and web-based questionnaires: Phase 3

Phase 3 of the IQA Research Flow consisted of the conducting of interviews as well as the use of web-based questionnaires according to protocol (Chapter 3.6.3). The affinities produced by the focus group were used to elicit descriptions of those affinities by the focus group as well as from the web-based questionnaire.

4.4.1 Phase 3.1: IQA Interviews

See the description of the methodology of the IQA Interviews in Chapter 3.6.3

4.4.1.1 Demographic data of IQA Interview

Fourteen pharmacists from a total group of n = 50 pharmacists registered with the South African Pharmacy Council who were invited to participate in a personal interview, volunteered to participate in the IQA personal interviews. The majority of participants were female, and only one participant was a lecturer in the academic sector. Most of the participants were in some form of managerial position within independent or corporate retail pharmacy. A total of five pharmacists from the focus group were included in the IQA interviews especially those who have experience of the scarcer part of the pharmaceutical sector such as manufacturing. The individual interviews lasted, in most cases, approximately between 60 and 80 minutes.

The demographic data of the respondents of the IQA interviews are presented in Table 4-5 below

Table 4.5: Demographic data of the respondents of the IQA interviews

Participant	Gender	Sector	Qualification	Age	Experience in years	Position
1	Male	Retail pharmacy: Corporate	M. Sc. (Pharm)	32	8	Manager
2	Female	Retail pharmacy Independent	B. Pharm (Hons) PCDT	51	22	Manager
3	Female	Retail pharmacy: Independent	M. Sc. (Pharm)	27	2	Operational
4	Female	Retail pharmacy: Independent	M. Pharm	28	4	Operational
5	Female	Hospital pharmacy: Public	M. BA.	40	18	Operational
6	Male	Academia / Locum	Ph.D.	59	35	Operational
7	Female	Manufacturing	M. Sc. (Pharm)	39	14	Manager
8	Male	Retail pharmacy: Corporate	B. Pharm	37	8	Manager
9	Female	Retail pharmacy: Independent	B. Pharm PCDT	62	34	Manager
10	Female	Retail pharmacy: Corporate	B. Pharm	40	17	Operational
11	Male	Retail Pharmacy: Corporate	B. Pharm	53	25	Operational
12	Male	Hospital Pharmacy: Public	B. Pharm	42	18	Operational
13	Male	Retail pharmacy: Independent	B. Pharm	50	26	Manager
14	Female	Retail pharmacy: Corporate	M. Pharm	46	22	Manager

4.4.1.2 Individual Interview Protocol

The individual Interview consisted of two parts of which the results of the first part, the Open-ended axial interview, as well as the results of the second part, the Structured Theoretical interview and the result, will now be discussed.

4.4.1.3 Individual Interview Part 1: Open-ended axial interview

The researcher introduced himself to the participant and orientated the participant as to the studies' aim and objectives, explaining the results of the focus group. The way in which the interview would be conducted was also explained. Each participant completed the same demographic questionnaire and read and signed the given informed consent form. The confidentiality of the data was explained to the participant.

The Issue Statement is a product or result of the IQA focus group phase and was presented to each interviewee with the onset of the IQA interview. The interview protocol is presented in Table 4.6 and each affinity was presented to the interviewees to discuss.

The interviewer (researcher) only had to put forward the following question during the interview: "What does the affinity mean to you? Tell me about your experience with the affinity" (Northcutt & McCoy, 2004:201). The response was recorded electronically with the permission of the respondent to be transcribed at a later stage of the study. The researcher followed these steps for constructing an interview as indicated in Chapter 3.6.3.

Table 4.6: Interview Protocol: Issue statement

Issue statement:
IQA Interview Protocol: Axial
In your opinion, what is the role of the pharmacist regarding medication adherence in South Africa?
External Barriers
Factors beyond your control that determine your practice as a pharmacist.
Disposition
The pharmacist's attitude within his relationship with his patients
Professionalism

More than professional appearance and behaviour. A way of being.

Communication Skills

Set of skills needed by the pharmacist so that all of the patients can understand him/her.

Information Role

Functional knowledge that the pharmacist shares with the patients

Motivational Role

All your actions in order to motivate the patient to adhere

4.4.1.4 Individual Interview Part 2: Structured Theoretical interview

The protocol of the second part of the Individual Interview, namely the Structured Theoretical Interview procedure, was discussed in Chapter 3.6.3 and the results are presented here.

The theoretical interview was recorded electronically with the verbal permission of each participant and transcribed later.

The researcher asked the participants to state their responses and the researcher recorded these in the personal Affinity Relationship Table (ART) of the participant. The completed ART of each was compiled during each interview and all the documentation is available from the researcher on request.

4.4.2 Phase 3.2: Web-based questionnaire

4.4.2.1 Background of the web-based questionnaire

Only pharmacists from the Constituency F according to the research design (Annexure C Table 1.2) consisting of all pharmacists from various sectors of the Pharmaceutical sector in South Africa, were used for the single focus group to develop the affinities. Pharmacists from the same constituency were interviewed by the researcher. The researcher decided to include as many pharmacists as possible in the study so that the final System Influence Diagram (SID) could be as robust as possible and not the product of 14 interviews.

4.4.2.2 Response of the Web-based questionnaire

A total of 2328 (18.16%) of the 12822 registered pharmacists' email addresses were either not provided or were not fully provided or not fully captured by SAPC and could not be included in the study. A total of 10494 or (81.84%) pharmacists were invited to participate in the study by email.

2195 (or 20.92%) of the total of emails sent “bounced” according to a report received by the distributing company, indicating that the email addresses were either inactive, had changed, were in email address format but wrongly captured and other reasons. Thus a total of 8299 email were successfully sent to the emails addresses as provided by the pharmacists according to the official register of the SAPC, thus 64.72% of all the pharmacists on the SAPC list were invited to participate in the study by the delivered emails. The pharmacists were invited to participate in the study and were directed to a website in either Afrikaans or English where the questionnaire to be completed was housed. The invitation consisted of an official letter from the North-West University in the name of the researcher as well as the promoters explaining the aim and importance of the study in Afrikaans as well as in English.

A record of the invited pharmacists who had opened the questionnaire was kept by the distributing company and more requests and reminders were sent within two weeks from each other on two occasions to the non-responsive pharmacists’ emails. After the third and final reminder to the non-responsive pharmacists, the questionnaire’s website was still kept active for a total of 14 weeks after which the site was closed. During that timeframe it was still possible for the pharmacist to reopen his/her uncompleted questionnaire in order to complete the questionnaire. A total of 965 pharmacists responded to the invitation by opening the website and answering the questionnaire. The response rate was 11.63% of the 8299 pharmacists who had received the initial invitation for participation by email or 7.53% of the total population of 12822 on the register. Another 492 questionnaires were incomplete meaning that the respondents ended the sessions before the final question had been reached and thus were not included in the study. Only 473 questionnaires were completed and suitable to be used in the study thus 5.7% of the pharmacists who received the invitation or only 3.69% of the pharmacist registered with SAPC at the point in time of the research study.

4.4.2.3 Demographic data of the web-based questionnaire

Except for a few questionnaires where some demographical data were not filled in, all the returned questionnaires from the 473 respondents were complete and were included in the data analysis. A description of the demographics of the web-based questionnaire follows. The number of usable responses will be indicated in brackets.

A total of 37.7% ($n_m = 177$) of the respondents were male and 62.3% female ($n_f = 293$), ($n_t = 470$). Language-wise, 51.3% ($n = 241$) of the respondents were Afrikaans-speaking while 40.0% ($n = 188$) were English-speaking. The remaining respondents spoke either indigenous black languages of South Africa or Eastern and European languages.

When comparing the capacity of employment of the respondents, 73.4% (n = 345) indicated that they were permanently employed and another 14.3% (n = 67) indicated that they were not permanently employed but were locums as pharmacists in pharmacies (n_t = 470).

More than half of the respondents indicated that they worked an average of five days per week (51%, n = 240) while another 20.8% (n = 98) indicated that they worked six days a week. The rest of the participants worked between one day and seven days a week. (n_t = 471)

A total of 63.5% (n= 298) pharmacists' responses indicated that they worked either in the hospital pharmacy environment or in the community pharmacy environment. The remainder (36.5%, n = 172) worked in other parts of the pharmaceutical sector such as the academic environment (5.7%, n = 27), manufacturing (8.7%, n = 41), Managed Health Care organizations (4.0%, n = 19), while another 11.3% (n = 53) indicated that they worked in other environments not indicated on the questionnaire. (n_t = 470)

The respondents working in the private community pharmacy or retail pharmacy environment, reported that 31.5% (n = 63) worked for the corporate pharmacy groups and another 66.5% (n = 133) worked for single owner or independent pharmacies. (n_t = 200).

A total of 98 respondents or 20.9% of the 470 responses indicated that they were working in the hospital environment. Forty-eight (49%) of those respondents worked in the public hospital pharmacy environment and the other 50 respondents (51%) worked in the privately-owned hospital pharmacy environment.

Of the 471 responses a total of 184 (39%) of the respondents indicated that they were between 26 and 40 years of age and another 30.6% (n = 144) were between 46 and 55 years of age while the average age of the respondents was 45.2 years.

When reporting on their qualifications, of the 470 responses indicated that 63.6% (n = 299) had a B. Pharm degree and 9.3% (n = 44) of the older pharmacists had obtained the Pharmacy Diploma. Another 13.6% (n = 64) of the respondents indicated they had a Master's degree in Pharmacy, and 6.2% (n = 29) pharmacists had a Master's in Business Administration qualification.

The 471 respondents indicated that 46.5% (n = 219) were in managerial positions with more managerial responsibilities in comparison to 52.5% (n = 252) respondents who indicated that they were in operational positions where they fulfilled mostly operational tasks such as dispensing, manufacturing, teaching and more.

A total of 49.1% (n = 231) of the respondents indicated that they had between six and seven years of experience as pharmacists while 21.1% (n = 99) of the respondents had more than 20 years

of experience as pharmacists. ($n_t = 470$). The median of the years of experience as a pharmacist lay between six and seven years thus 50% of the respondents had less than seven years of experience. External Barriers may play such a large role in the lives of the respondents because of the fact that they did not have relative many years of experience as pharmacists.

In this section the results of the Research Design Phase, Focus Group Phase, Individual Interview and web-based questionnaire were presented.

In the following section the results of the axial coding process of the Open-ended axial interview will be presented as the Affinity Write-up.

4.5 Affinity Write-up (Composite Affinity Descriptions)

The first research question namely “What are the components of the pharmacists’ perceptual system regarding their role in medication adherence in a South African context?” will now be answered in the following section.

4.5.1 Analysis of affinities

All six the affinities are presented in the write-up in the same order as their position in the system from primary driver to primary outcome. The reader will now be presented with the “write up” of the affinity. First graphic representations of the affinity and sub-affinities are presented and then the evidence is organized and presented in a specific protocol throughout the write-up:

- The first sentence interprets the essence of the topic, is in **bold** and is the verbatim quote of a participant. The quote will again be seen as part of the subsequent quotes.
- The second sentence interprets the section, is in the voice of the researcher and contains a noun or a phrase used as a noun that is *italicized*.
- The remainder of the section is enclosed in “quotes” and selected by the researcher as supporting material and in the voices of the pharmacists and presented in *Italics*.

The first of the six affinities namely External Barriers will now be presented as a heading in bold. The sub-affinities of each affinity will be presented as another heading in **bold** and lastly the name of the elements (sub-sub affinities) is printed in *Italics* and can be found in the sentence under the quote

4.5.2 External barriers

The affinity External Barriers is the primary driver of the system named Pharmacists' perceptions of their roles in medication adherence. The axial coding of the individual interviews revealed a total of 14 sub-affinities.

A graphic representation of the sub-affinities of External Barriers is presented in Figure 4.1 and the discussion of the sub-affinities and elements then follows.



Figure 4.1: A visual representation of the sub-affinities of the affinity External Barriers

4.5.2.1 Sub-affinity: Availability of medicine

The following elements are part of the sub-affinity: Availability of medicine.

- **“The people get highly irritated, they will not have any medicine to use for those five days.”**

Pharmacies do not usually carry a lot of medicine on the shelves and are totally dependent on the *frequent delivery* of their medicine.

“Stock was not a very big problem for us. Here and there you have a company with whom one has a direct account and if you order today you would only receive the order after seven days. Then you rather order from your providers who deliver daily. Late deliveries sometimes takes a company five days to deliver in bulk. The people get highly irritated and they won’t have medication to use at all for those five days if the other pharmacies are waiting for their stocks as well. Three or four pharmacies may be waiting for the same stock and everybody wants to borrow from everybody else but nobody has anything.”

- **“Then you can’t expect of the patient to be compliant because there is no medicine at all.”**

The *Availability of Medicine* is determined by the Pharmaceutical Companies which release medicine to the market to be distributed.

“I do not know where the problem lies for they will say there are no raw materials, then this, then that, and then the labels have to be changed. This becomes a problem and a pharmacist really struggles. I do not know whether it is because the one company takes over the other and they merge but the medicine are out with everybody and when it comes to the wholesalers it is out. I phone eight wholesalers and it remains out and nobody has an answer as it is a raw materials problem. This is now something that is out of the hands of the pharmacist and it is true that the doctors don’t understand this, but there is nothing that one can do about it. Especially at the beginning of a new year when there are always a lot product out of stock just like that. This past month none of the eye ointments were available”.

“Our out of stock situations is a physical shortage with the providers because of packaging that changes or shortage of active ingredients, the raw materials. Sometimes the manufacturers are out of stock, or there is this problem or that problem with the testing of the medicines, and there is no medicine on the pharmacy shelves. Then you cannot expect of the patient to be compliant, because there is no medicine. There are different reasons and the biggest and most important is perhaps because South Africa is so far from the rest of the world. Europe and America are after all the big manufacturers. We import all our raw materials and the active substances from there

and if there is a problem for whatever reason then we just do not get the medicine. It might be because there had been inspections at the manufacturers of the raw materials, and they have put other procedures in place, or perhaps fix something before they can make raw materials again. The manufacturers closer to them now get preference when it comes to raw materials and if raw materials become available it is sent to them first before it gets sent all the way to South Africa. For me this is one of the biggest reasons why medicines go out of stock on pharmacy shelves in South Africa.”

“The company manufacturing the medicine in South Africa has a problem. Suddenly there is a problem with the medicines when they test them. There are some tests that if you do not comply with the specifications you can’t put that product on the market. You must first determine why it is so, and what are you going to do with the next lot to ensure that it does not happen again and that everything again complies with the specifications. Then of course it is where the role of the reps is very important and I have to tell you that there they are not very good because when they can sell you something they are here every day, but when there is a problem with their products, they do not keep you informed and this is a pity for me. It would be really nice if they could rather write you a letter or an e-mail to say that there is this or that problem so that you can give it to the patient in black on white. There are so many new products and generic companies coming on to the market and each day there is a new rep claiming that her generic is better so I gave him Medicine X and then I see to it that the quality of my generic is better.”

- **“So there are a lot of ‘out of stock’ problems.”**

Pharmacies themselves as well as the suppliers are sometimes out of stock.

“We do not always have stock and what do you do under those circumstances? How do you handle it? This is one of the biggest problems to keep everyone happy. If I did not pick it up that the medicine was available for only that day then we would also not have had it. So, there are many out of stock problems such as whose medication do you stock and whose don’t you stock? Your large groups have already started with a list that says they only keep certain medicines and for example only stock Pharmaceutical Company A and B, and nothing further.”

“There are also the same challenges in the private sector but less than in the public sector. In the private sector we are more able to get our hands on stock as more wholesalers are there than in the public sector. I have also had the same problems with stock that was out, recently there was a beta-blocker, the only beta-blocker that one can inject, and it was out, and anaesthetists do not understand it, “How can it be out of stock? Then we have to “make a plan”. One of my biggest problems is then of course availability of the products from the providers if a patient suddenly has

to use something else in its place and the product is not available anywhere. This can have a negative influence, because why should I use the medication anyway?"

- **"If you don't have something, you don't have it."**

The *Pharmacy's policy* regarding the management of medicine and availability of specific brands may also have an impact on the medication adherence of the patient.

"Sometimes if you don't have stock at the moment, you quickly borrow from another pharmacy. Then you could fetch it quickly and deliver it. Corporate Pharmacy A now does not have it. If you don't have something, you don't have it. You cannot borrow from somebody, really not borrow from anybody."

- **"People become negative."**

When some medicines are unavailable, it primarily has an *Impact* on the patients.

"Medicine X that has now been out of stock for a long time and some people went onto hormone stickers for a while and some simply stopped hormone therapy and tried to use natural treatments for that time to keep hot flushes and that type of thing under control but everybody had a different approach. With Medicine X, doctors were consulted all the time as we asked "Must we give something else in its place, or what suggestions do you have?" Do you know, we have an average of 100 items a day that are out of stock and then it is important medicine like Medicine Y, a blood pressure medication? The patient then said: "This pharmacy – they have nothing. They do not have stock" and so I tell him: "Uncle, go and try elsewhere and if you come across it, buy five or six boxes, because there is no stock available."

"People become negative. Every time the uncle enters, then he asks: "Listen here, haven't you got my stuff? "No, sorry, Uncle, I haven't got it yet". I am now sitting with an old man with Medicine P. His wife has contracted a rare kidney disease. She drinks 5 milligram three times a day and I can't get hold of Medicine P in 5 milligram. So now I have to give her two and one milligram that means she now has to take two of the two milligram and one of the one milligram, three times a day. It comes back to patient adherence again. This means that where she only had to take one tablet she must now take three of the things three times a day and she has to take a handful of other pills as well."

4.5.2.2 Sub-affinity: Corporate Pharmacies

The following elements are part of the sub-affinity: Corporate Pharmacies.

- **"And the prescription pops up here, and we have to fill it."**

Prescriptions are sent from a *Call centre* to the local pharmacy where the prescription must be filled although the patient is not in the pharmacy.

"In the other Corporate Pharmacy D, the call centre people sit in City J and they submit their prescription there and the prescription pops up here and we have to fill it. We count out the pills, put them in a package, and we store it at the back. So this is still extra as these are not yet the clients that you see. These are clients who are extra and the people phone and the little old ladies in the old age homes call and say: "Listen, Pharmacist A, I am looking for my pills. Can you make up the prescription and send it to me?" Another one will phone and say: "I will be there in half an hour, I am fetching my pain medicine" while in the meantime there is a whole queue of people. We saw in City V that they have a staff member who does this and they do the call centre packages and they answer the phone and make up the packages and stuff."

- **"And you have less and less time, less time for those patients."**

Some pharmacists feel that the action of *Caring for the patient* is under pressure in the corporate pharmacies.

"Volumes are getting bigger, bigger all the time, and you have less and less time for those patients. So where the large pharmacy groups say that they do 400 to 500 prescriptions a day, and they give personal attention to those patients, that is sheer nonsense. You can't do it. So sometimes they will lose patients with prescriptions because if the pharmacy do not have something, the patient rather go to another pharmacy. The pharmacist can exchange something or you had better to call the doctor. The service was better at Small Pharmacy X because we could deliver medicine but not here at Corporate Pharmacy D. This is a big difference. To me it feels as if I could have done more for the patients at Small Pharmacy X and I had the doctors there who are there for me. Sometimes if the doctors are also busy then I know I can go on and I can simply ask for a prescription afterwards and they will give it to me."

- **"They are only allowed to stock certain lines."**

Some corporate pharmacies have a *Formulary* restricting the availability of medicine.

"I must, in the past three months, have had 60 people who came back from corporate pharmacies. They simply do not think they can stand, as a sick person, in those long queues and then only be able to access only part of the prescription. The corporate pharmacies are only allowed to stock certain lines, and the rest then has to be issued at another pharmacy. But I treat them so well that they will bring the whole prescription to me."

- **“The general appearance of a product also in any case influences a patient’s adherence.”**

Some pharmacists feel that the medicine in the original packaging is superior and will contribute *better to medication adherence than the House brand medicine of the corporate pharmacies.*

“The general appearance of a product in any case influences a patient’s adherence. You can take this in general when you walk around the shop. That is why many people do not buy the no-name brands, as they say, from Chain Store A and Chain Store B or the house brands, because the stuff only has a sticker on and the name: Product of Chain Store A. If the patient takes the medication and he sees that the original was in such and such packaging, neat and everything, and with this he can just see that it was skimped when it came to the packaging. I think this definitely also plays a role.”

- **“But if he wants that individual attention and advice, will he really get it at a large group?”**

Some pharmacists are not sure if the patient would receive *Individual advice* and attention in the corporate pharmacy groups.

“The larger groups probably have the advantage that they might be able to help patients more quickly because there are more pharmacists and the patients do not have to wait. But this depends on the needs of the patient. If the patient simply wants his medicines quickly and leave, he might not have a problem going to a larger group. But if the patient wants that individual attention and advice, will he really get it at a large group? I don’t know but I have my doubts.”

- **“But especially with chronic conditions it does play a role if you do not have that relationship with you pharmacist?”**

Patients need to have a *relationship with the pharmacist* even in the corporate pharmacies.

“I think it is difficult in a large group. If you are simply looking for a headache remedy, then it is easy because it does not really matter. You are going to drink it to take away your headache and that it that. But especially when it comes to chronic conditions, it does play a role when you do not have that relationship with your pharmacist. With the present economic pressure there are many people whose medical funds are exhausted very quickly. With all the high costs they do not want to go to the doctor so they expect of us pharmacists to help them. At Small Pharmacy X it was easier to help because you had established a relationship with the patients and it is the same people who always come. Going to the doctor feels like going to family. You get to know them so well, so I could often phone the doctor quickly on the inside line and asked him, and he would say: “Okay give a course of Antibiotic A” that I did and in this way help them. I still believe

that even if it is in a large group, that a personal relationship exists with the pharmacist. So this is “my” pharmacist within the larger group, and I also go to a pharmacy where it is convenient and comfortable for me.”

- **“They only have delivery for a small period of time.”**

Corporate pharmacies do not have the same Services as the small pharmacies.

“For me it is bad as Corporate Pharmacy D only had delivery for a small period of time. I miss it, and the patients as well. At Small pharmacy X we had delivery the whole day long, and this is very important for the people.”

- **“Now you just have to stand in the queue and wait, and the baby sits on your arm and cries, because she is feverish, and you simply have to stand because you need to have your medicine.”**

Patients have to wait a long time in the queues in the Corporate Pharmacy.

“I had bad experiences in City P, where we lived before. I once stood for an hour in that pharmacy with a sick child in my arms. When I got to the front then he asked the person next to him who was also busy with a patient and that person had to help him too and the patient had to wait. I have to assume that it was, because it was a new face in the pharmacy somebody who did not know what was going on as he did not know where to find the doctor who had written the prescription. So on that day I decided never again. It was not the first time that I had to wait for a long time in a Corporate Pharmacy X pharmacy. I am not too taken with their pharmacies. They do seem to try, because some time later I was in one of their pharmacies again, and then I saw that they had made a separate row for the over-the-counter medicines. So if you walk in and say you simply want something without a prescription you can go and stand in that row and then they have different rows for people who have prescriptions. This was probably done to try and help make the flow of patients faster. You just have to stand in the row and wait, and the child is crying against your shoulder, because she is hot and feverish but you have to stand because you need the medicine.”

- **“It is easier when there are only one or two pharmacists in a pharmacy than when there are five or six.”**

The patient sees *different pharmacists* every time he/she visits the corporate pharmacy.

“It is more difficult if, for example, there are four or five pharmacists in the pharmacy, and the patient does not speak to the same pharmacist every time. Is the pharmacist really there to see to the patients and their needs and health, or is the only concern the number of prescriptions that can be filled in a given day? This is really my opinion that in the larger groups it might simply be

a matter of the number of prescriptions. Where the concern is with prescriptions as well in smaller one-man businesses, because in the end that is your bread and butter, but there is more concern with the relationship with the patient. It is easier if you have only one or two pharmacists in a pharmacy than five or six.”

4.5.2.3 Sub-affinity: Doctor

The following elements are part of the sub-affinity: Doctor.

- **“Obviously, what the doctor prescribes will largely determine what one spends.”**

The doctor *determines* what medicine the patient will use because he writes the prescription and the pharmacist fills the prescription.

“Obviously, what the doctor prescribes will largely determine what one spends. The pharmacist might give a cheaper medicine. It depends on what kind of medicine it is. He (pharmacist) might suggest cheaper generic medicine especially with chronic condition. The patient has been using the generic medicine since the beginning of the year so that his fund is not exhausted so soon. Perhaps the doctor does not want the patient to go on the generic medicine or he might for some reason want the patient to take the original medicine. There it might come to communication among the pharmacist, the doctor and patient. A doctor might at times state a matter to a patient in a way that makes it difficult for the pharmacist because then you almost have to defend yourself or express yourself better because the doctor has already explained it differently to the patient. The doctor is the one calling the shots and who says what he wants and how it should be taken. In a hospital I also see now that I am not being asked for advice so often because there are ten doctors in the hospital. So they would rather go to the doctor and ask advice about specific things, even their medication.”

- **“This is why the guy (patient) must go to the doctor every six months”**

When the patient uses *chronic medicine* it is to his/her benefit to visit the doctor every six months to get a repeat prescription and a check-up by the doctor.

“When we opened shop, and the first day when we opened, he walked in. He is looking for something for his wife -- I will never forget it – Medicine G and I said to him, “No sorry, you need a prescription.” And he said he always got it from the other pharmacy in town and they give it to him. So I said they might, but they are not allowed to as there was a reason for that”. I asked him: “That pharmacist who gives it to you every month, has he ever tested your wife’s sugar levels?” No said he, he had never done it. So I said to him that he should bring in his wife the next morning, and she had to be fasting, so that the sugar levels could be tested. When I test her

sugar levels, it was almost 20, and then I told him that is exactly what I was talking about. That is why there are rules. This is why one has to go to the doctor every six months, so that the doctor can do all the necessary tests and make sure. We have to get the compliance of the patients to ensure that he/she obtains a repeat prescription every six months. That is why we do not give him medicine for which he has no prescription. When the patient's repeat prescription is finished I say "Uncle, Auntie, Sir, Madam, you must please bring a new prescription" and then he goes to the doctor and the secretary writes the prescription and the doctor just signs it. Then you just know that the patient's blood pressure has not been taken. If it is a diabetic, no HBA1C was done or the sugar levels at least checked. None of those things got done. Or cholesterol is not checked ... nothing, nothing, nothing. What does it help if from my side I try to keep to the rules and be professional and try to help the client and to see to it that at the end of the day he gets the best treatment? You know that that is really a problem".

- **"There should be a law that doctors should not be allowed to dispense."**

Pharmacists are still not at ease with *Dispensing doctors* who are dispensing medicines from their practices.

"There should be a law that doctors should not dispense. I would like to open a pharmacy, but if there is a dispensing doctor there it is no way that I will want to open up there. The poor guy who finds himself there is not really protected because the courier pharmacies take all his feet. I feel that the Pharmacy Council should look at such things. I am now thinking of small pharmacists – single pharmacists in small towns. There should have been legislation that a doctor should not be allowed to dispense within five kilometres but nothing has come of this. The doctor does three-quarters of the medication in the town and nobody can control them."

- **"Because the doctor and I have a relationship so that he knows what I stock for him."**

A working *Relationship* between the doctor and pharmacist will benefit the patient.

"I always tell doctors when they leave our group to practice elsewhere they will not know what pills their patients will get. If their patients stay with me they (doctors) will know what the patients are going to get but if they go to other pharmacies there is no clue as to what the patients are going to get. I do not say that the other pharmacies change everything, but the doctor is not sure what he is going to get on the outside. We find ourselves here with an issue with the doctors. The doctor would like, because we work together closely, that I should stock a Pharmaceutical Company R brand. Now I have to stock Pharmaceutical Company R with my other medicine as well. Tomorrow, Pharmaceutical Company W comes along and Dr X would like their brand to be

stocked. I have a good relationship with Dr X and would like to stock his preferred brands, so now I stock that as well."

- **"The number of doctors in an area will also play a role."**

Doctors *Close to the pharmacy* will have an impact on the "scope of practice" of the pharmacist.

"The number of doctors in the area will also play a role. I worked in Country B for a while and there I was the only pharmacist with the only pharmacy in town. One of the doctors was a foreign doctor and nobody wanted to go to him. Immediately you have a much larger scope of practice because everybody comes to you first, so I think the environment basically determines one's, one could say, scope of practice."

4.5.2.4 Sub-Affinity National Department of Health

The following elements are part of the sub-affinity: National Department of Health.

- **"What breaks my speed is that the state plays such an enormous role in our practice. By that I mean medical funds, price stipulations."**

The regulatory powers of the *National Department of Health* have a direct impact on the practice of the pharmacist.

"I tried for a year to shift the licence of this pharmacy three blocks away. I did not need a new licence, I simply wanted to change my address. In the end I now have three licences for this pharmacy after I went to the Department of Health at least twice and there is total chaos. The government decides about how our business should be run and that is definitely the biggest factor deciding the practice of the pharmacist. I feel that one has an input through the Pharmacy Council, but this is not a direct input while the government can decide that this and this is how things should be with regard to the dispensing of medication. I think those would be the most important factors. It sounds to me that the big roles being played outside our group is the government, who decides what pricing systems should be used. In the past we determined the prices, we had the blue book and we had the prices". What really gets me down is that the state has assumed such a big role in our practice. By that I mean medical funds, price determinations. Trademarks are being forced on us."

4.5.2.5 Sub-affinity: Management of the pharmacy

The following elements are part of the sub-affinity: Management of the pharmacy. The name of the elements are printed in *Italics* and can be found in the sentence under the quote in **bold**.

- **“Last year we did not get bonuses, never mind how hard we worked.”**

Pharmacists working in the pharmacy expect *Acknowledgment* from the managers for their hard work in sometimes difficult situations.

“Sometimes it is unnecessary to have the boss on your case for R10 or R20, because every single prescription that is outstanding, we are penalized for in our performance assessments. We did not get bonuses last year, never mind how hard we worked because of patients who do not pay their accounts and these are the negative factors that really get us down. Then later on we don’t even want to take trouble, because in any case we do not even get a thank you. This now influences it negatively again in the sense that I really do not want to stay after hours, because I get nothing for it, no payment. I do not get a chance to eat, so if I do not get out of there by six o’ clock I am ready to collapse. It is all about there are not any reason for prescriptions to be outstanding, whether the patients come and fetch the medication or not or whether it is still in the pharmacy or not. If they have not fetched it within three days, they are probably not going to fetch it and then he said that from an amount of R6, if people do not come in to pay, one can put this on the write-off account. In the end the write-off account is also penalized on our performance assessment so sometimes this makes one wonder if he is looking for a reason to penalize you but sometimes one gets the idea as if nothing that you do is good enough. This extra mile that we walk to keep prescriptions and to call people for their co-payments and to claim the stuff afterwards is a desperate effort to keep open the pharmacy. He has an issue with the number of prescriptions or the low number of prescriptions that we also do per month and so you try to keep every prescription.”

- **“The guys just sit up there in their offices.”**

The Owners of Corporate Pharmacy Group D are pharmacists and they have experience of the working environment of a pharmacist unlike some other owners of pharmacies.

“They stood in a pharmacy themselves, and also worked like us with clients and medical funds so they know what it is like. These are not guys who sit there and who have not worked in a pharmacy and never had a client in front of them who might get rude or unhappy or stock that you can’t get. No, they understand those things and they know what happens and this does make a big difference. Those guys sit their upstairs and they do their calculations and they have shareholders and they need yields on their dividends so obviously they are going to make rules to make sure that their dispensaries and their shops are being run as profitably as possible. I am speaking from the perspective of a large company. Theory and practice do not always agree but I can honestly say that in Corporate Pharmacy Group D where I work this is really not the case.”

- **“But it still feels (for me) that their salaries are not on par with other professions.”**

Although there is a demand for pharmacists, they feel that they are under-remunerated compared with other professionals who earn better *salaries*.

“The salaries of pharmacists. I mean I can now probably tell you what I get. At this moment I am getting R30 000 and this is an X%\$# of money. But engineers and the guys get 50 000 and 60 000. Now, where did that difference come in? I know that at one stage there were too many of us and there was an excess of pharmacists and now it is getting to be too few. This is now Corporate Pharmacy Group A and Corporate Pharmacy Group B opening so many pharmacies so pharmacists are now getting to be sought after but it still feels to me that their salaries have not kept up with other professions.”

- **“The staff are too few. You are short-staffed.”**

Pharmacists feel that there is a *shortage of pharmacists* in pharmacies to properly help all the patients and to attend to all the other responsibilities of a pharmacist.

“Management and ownership I also see as an external factor because I cannot pursue that with motivations to appoint someone extra, so this is a factor outside my control. The owner who now only appoints one pharmacist and I begin to suffer burnout. I start making mistakes, patients suffer, and obviously one can correct some mistakes, but sometimes it can have very negative results. When it comes to the big picture, I have now worked at Pharmacy Group X in Town C and here and the guys do not hear what I am saying. There are too few staff. You are short on staff and I can understand what it is about. It is all about money. The owner or the manager must get an income and he cannot simply go and appoint people but last month I saw one thousand four hundred clients. This comes to 45 clients per day. This gives you eight minutes per client. I do not know whether this is good practice and then the assistant is standing next to you so you have to do other things and then prescriptions come through from the call centre. You are tensed up the whole day and you are in a rush all the time.”

- **“You have to generate more and more turnover to make a living and to act as a professional pharmacist.”**

The pharmacist carries a large *workload* in order to generate more turnover in order for the manager or the company to survive.

“Medical funds exert pressure on us to make their profit by means of higher turnover, higher turnover and higher turnover. The profit margin is smaller so we cannot say that we need more money for staff and so the load on staff keeps getting more and more. It is higher turnover and you have to generate more and more turnover. The factors outside cause this. It is just always

higher volumes that we have to turn over and if we could do less and make more profit, we could spend more time on a patient.”

- **“I feel helpless.”**

The pharmacist in private practice depends heavily on an operational *infrastructure* in the pharmacy.

“This might sound like a very emotional answer and I feel helpless. I felt yesterday all the time as if I wanted to cry, because I did not feel up to facing the day. Especially not if it became the same sort of situation with the technology, but the medical funds started going through yesterday after five, and we were hopeful. It is as if the whole situation is taking an enormous emotional toll, because your head is in so many places at the same time. Will I get my money afterwards? Will these people return if I have to phone them for their own contribution? Will we have to write it off?”

- **“Sometimes it is a little rough in a pharmacy, and then they do not really have time to talk to patients.”**

The pharmacist needs *sufficient time* to focus and concentrate on the patient and his/her medication adherence but time is not always available.

“An important point mentioned is time, and how you can use your time when you have to do with a patient. I just think it has to do with being more productive or how you are going to use that time and then the adherence of the patient is going to be better. This depends on how much time you have and whether you can really focus on the patients because if you cannot focus when you are dispensing, or working or consulting, important things are lost in the process. The things that play a role in patient adherence is time that the pharmacist has to talk to patients. Sometimes it is a little chaotic in a pharmacy, and then they do not really have time to talk to a patient. It is more a question of seeing how many prescriptions we can do for a day. There is no time to enter into interaction with the patient.”

- **“The queues of patients.”**

Too many patients waiting in a queue to be helped tend to influence the pharmacist to finish every patient's prescription in the shortest possible time.

“So if you have a queue of twenty in the morning between 8 and 10, then it can be a problem with “I am just finishing off with the patient in front of me” and you really do not have a chance to interact with a patient. I am talking about where in a busy pharmacy you have to manage a queue plus give quality information to that patient in front of you that is possible. Then you have to keep your wits about you. I think that if you cannot work under that kind of pressure, then it can be a

problem and this often happens. Factors outside the control of the pharmacist in practice is workload. The load is really high for the pharmacists, and I use students during the day to also sometimes help to relieve that pressure from us"

4.5.2.6 Sub-affinity Medical Schemes

The following elements are part of the sub-affinity: Medical Schemes.

- **"Why do I pay at the one and I do not pay at another one?"**

Most patients with a medical scheme need to make a *co-payment* to the pharmacy for each prescription being filled. Some pharmacies (mostly corporate pharmacy groups) discount the co-payment and some pharmacies (mostly smaller independent pharmacies) cannot afford to give discounts.

"A patient might not have to make a co-payment at one place and now he has a co-payment. Especially patients who might not understand at all how such a system works are immediately upset about the co-payment. Especially when medical schemes only pay for the generic and the doctor has prescribed the original and then there is a co-payment. I have had cases where the patient then said that he did not want the prescription or the medicine on which there is a co-payment must be left out. This is something completely out of our control and the patient cannot understand this, even if we explain it. Understand that we are a small pharmacy and they do not understand the difference between a chain store and a small pharmacy. A pharmacy for them is a pharmacy. "Why do I pay at one and why don't I need to pay at another?" I think it is perhaps also important because your hands are cut off if people tell you that they are with Medical Scheme X and you know they are not going to pay for the medicine and the patient do not want a co-payment."

- **"These are the guys controlling the health system at the moment."**

In pharmacists' experience, the medical schemes *control the entire Health Care System*.

"Let us look at medical funds. At this stage this is the biggest frustration, not only for us but for everybody in the health industry. The big medical funds definitely play an important role and a very, very important role. These are the guys who are at the moment controlling the health care system because they decide that this patient may only get this product. The patient may have only so many repeats or the patient may only get this and for them it only goes about the cheapest product. Sometimes we say, we mock, and we say that we work for the medical funds. Smaller pharmacies are now trying to make a bigger profit. We have most of our contracts and we have signed as a DSP (Designated Service Provider) pharmacy. So those are factors outside our

scope, the medical fund tells us what type of profit we can make and they give us lots of problems. People all complain, they will ask all the time "What fund is the best?" Everybody complains about the same, things become more expensive every year and they get fewer benefits. The rules change every year and there are more exclusions so medical funds are a problem".

- **"This is probably the end of the year, the medical fund has been exhausted."**

Most patients only have limited Medical Scheme funds available for a 12-month period to purchase medicine and often their funds are exhausted.

"An external obstacle that pharmacists can't do much about might be the standing or status of the patient's medical fund. Does the medical fund cover the medication that he wants? It might be the end of the year, the medical fund might be exhausted, and he does not have the money to buy privately. The pharmacist cannot really play a role there, but this is something that might have an impact on the patient's adherence. Yeah, it get exhausted very rapidly and some people do not have a self-payment gap that they will be paid for later in the year. They are then simply finished for the rest of the year and then they have to pay cash themselves".

- **"But now the tablet is green, or looks different. Then they will not be inclined to take it."**

Medical Schemes support generic substitution of medicine to save costs and the patient does not always get the same product they are used to every month.

"I am not always for generic stuff and I don't like it much. I like my ethical medicine, my original medicine, because I do not think that the generic medicine is always so effective. Some of these guys, especially the guys who send medicines by mail, they are guilty of this as they will obviously go for the cheapest product. What I do is that I tell people if he comes in there and he says that the fund does not want to pay the original, and especially when it comes to a child and the child is very ill, then I tell the guy: "Listen, pay the forty or fifty rand and take the original product and be certain that your child is going to get better." It is important for me because at the end of the day the patient might come back and then it is more and more and more costs. One must specify a little so that people who are on lower medical funds can know that there are only certain products on their list which are not very effective, and might not clear up the problem. You can explain to them better and this is now where communication comes in. You have to explain to them: "Rather pay for the medicine out of your own pocket and get healthy than come back for this cheaper one three more times."

"This makes people negative, it makes them unhappy and negative and obviously you now have to swing the patient to another product if you cannot get a new one. Especially old people have

always taken that blood pressure pill and it was always pink or white and now you swing her to another one. I know for a certainty that it is the same active ingredient but I won't say it is equally effective but now the tablet is green or looks different. Then they tend not to drink it and they refuse to take it because they have now become used to something else. They have now been taking that one for ten years, and now she has to shift to another one. This comes back to the medical fund again, which switches people to different things. Especially for older patients this is very, very difficult. Sometimes they do not believe that the alternative is going to be as effective and sometimes one has to bring in the doctor to help motivate and say that it is in your own interest to keep on taking something at least."

- **"These poor old people are like rats on a sinking ship."**

Patients are sometimes transferred from one Medical Scheme to another by the administrators with administrative implications for the patients and ultimately for the pharmacist.

"All my old age home patients here, all those old ladies and gents that we have serviced and treated them well and helped them with chronic medicine. Now all those patients have gone to Medical Scheme A and our chronic medication has also gone from Medical Scheme B to Medical Scheme A. During the past two days I have probably spend 12 hours on the phone with Medical Scheme A to try and help these poor 85-year old and 90-year old people in the frail care unit. 15 000 members of Medical Scheme B members have been passed on to Medical Scheme A just like that. Why did Medical Scheme A not take the younger ones, the 15 000 patients not yet on chronic medicine? These poor old people are like rats on a sinking ship. They do not have the vaguest idea of any information and need you and the care units do not do it."

- **"Medical funds are my point number one when it comes to obstacles because medical funds enter into contracts with certain pharmacies."**

Medical Schemes put contracts into place with certain pharmacies and this practice is frowned upon by pharmacists.

"Medical funds are my point number one when it comes to obstacles because medical funds enter into contracts with only certain pharmacies. We try to have contracts with all the medical funds but with some there are only postal contracts. Now there is a problem and they will still source from us but then there is a co-payment. So the financial implications for the patients are too big. They cannot afford it because it happens that they do not want to get their medicine through the post and instead of coming twelve times per year to us, they will only come nine times per year. Some days they do not take their medication and this is bad. As their pharmacist I am good enough to get up during the night for his child when he is ill, but I am not good enough to do 90% of his chronic medication and I do not have a choice. Our pharmacy group applied for example

to do Medical Scheme's chronic medicine and we agreed we will give them those prices. They said simply that it is an own contract or a postal pharmacy and we cannot apply. Whether you are now Corporate Pharmacies Group D or another pharmacy group or whoever. You won't get that contract as it is only for a postal pharmacy."

- **"Most of the pharmacists who work in retail will tell you that the medical funds are a great source of frustration."**

Medical Schemes put *rules* in place to manage the medicine patients can buy and these rules (as experienced by the pharmacist) do not contribute positively towards the medication adherence of patients.

"It can also be many other rules and regulations that can affect adherence. Rules and regulations and habits procedures might also have an influence on adherence. Then I discovered that a silly thing like medical fund rules can sometimes be an obstacle which has an effect on adherence. The fact that a patient is confronted with a thing that you give him as prescribed to achieve a certain outcome and now suddenly he has to pay for it. If his medical fund rule is such that they do not pay for and he has to obtain authorization and it can mean that at the moment he refuses to take it and first has to talk to his fund. Then perhaps he has to obtain authorization from his doctor which has to be faxed before they are going to give permission. It is a big obstacle for the pharmacist and the patient, as sometimes it takes a week before he gets authorization to use the medication. If it is a hypertensive patient, then a week is long time before he finally gets treatment. They might for example think that if a doctor has given a repeating prescription for six months, they now think it is chronic. They hand in the prescription to the pharmacy, and the pharmacy does not take trouble. They simply dispense and after a few months the fund is depleted and then the patient had thought it was chronic and then it had not been approved as chronic. They often understand, repeat for six months and then it is chronic. They do not understand that you have to apply and obtain authorization and many people do not know it or it is not followed up in the pharmacy. The pharmacy simply rushes as if they simply want to dispense and to make money."

"At this stage it is a huge frustration. I have once phoned and the Medical Scheme told me that I was getting personal. I then said, "But you do not worry about the well-being of patients. It does not bother you at all. You are simply looking for money in your pockets. Because how can you pay for something one month, and the next month there is a generic on the market? Now you refuse to pay for this thing, but the previous month you had paid fully. The generic had not been available and now you do not want to pay and the patient has to pay the difference". This has a big influence when the guys have to start paying many co-payments. Then he will simply have to settle for the generic and for the cheaper product which I do not always think is the best for the patient. Especially when one thinks of chronic diseases, and complications and prognoses. Such

as diabetes, if one does not treat it properly. Most of the pharmacists who work in retail will tell you that the medical funds are a big source of frustration.”

4.5.2.7 Patients

- **“He wanted to hit my intern with his fists here yesterday.”**

Some patients might have a negative attitude.

“Yesterday I have a patient here, a guy, really, he comes from Small Town F. He wanted to hit my intern with his fist here yesterday. They become rude about the fact that we did not have stock. Often, when we have out of stock situation, I will phone another pharmacy in front of the patient and ask to borrow stock or to buy or whatever and then if they also do not have, we say to the patient you have now heard what the situation is and then he was upset.

“The patient insists on medicine in the public sector and this also happens in retail where he comes in and says: “I pay for my medical fund and my medication. Here in the public sector it is as if the patient has to get everything and there is little in terms of understanding. They come in and say they want that, they want bandages, nappies, cleaning material and they want so much and they want, want, and want. They do not want a limitation on it and they also place a lot of pressure on you. They want to take chances and in a way they share their medication with family members who do not have medical funds. If the patient already comes in with that attitude of ... “you just give rubbish”, or “Listen, you studied with the public sector academy so you are not professional pharmacists”. If your patient comes up immediately with “But that stuff does not work for me or the stuff that you give is rubbish or you give us the cheapest stuff.” Then you are half negative yourself on the spot because I have to tell you honestly that I once went and looked and we have 1200 items on our shelves.”

“Then you still get the situation where the patient does not believe you and will then tell you, “But phone my fund, I am waiting” and then I know what the fund is going to say to me. They will say that they need a lipogram and the patient is satisfied and leaves. We have had to phone many medical funds about this “X”£\$” and then that “X”£\$. I do not see many other pharmacists who do this, so I do not know whether I have done something wrong. Then we have had patients bringing us their files with medical fund information to sort out because a letter came from the medical fund, so what do they want? They see us as a source of information to tell them what is going on in their medical fund, and we really do not have a clue. They are in a hurry, and when they get to the pharmacy they don’t want to wait and they sort of tap, tap and tap. It does take some time to mix stuff, to mix substances and when the children are impatient I just remain calm or I feel like pulling a veil across myself. They cannot see what is going on inside as I think by

myself they have just waited three hours for the doctor, and now they don't want to wait for you so that you can just carefully dispense. If you become aware that this patient is in a hurry, this is when you can easily make a mistake. The patient has a problem and some people are simply otherwise."

"The minute he walks in, he upsets you and then that "bloke" messes up your whole day. All the other people that you see the whole day are quite all right, and friendly. This is now my personality again as one gets too upset about it. I must try and remember the other 44 people whom I saw and forget about that one. I said to my colleagues that let us remember an average of 6 000 patients a month. This is 12 times 6 that is 72 000 people a year that you serve. I can say in all honesty that I can count on the fingers of one hand the people who were really rude. I can really count it on one hand but it also depends from region to region. I spoke to guys working in City J and they say "You do not know how lucky you are to work here in City P and the platteland". This refers now to the patients leading a very hectic life that side as the patients are far more demanding in City J. The patients all know better and more and the pharmacists say there are lots of clients who, just like that, start yelling and swearing at you."

- **"Even clients can distract your attention."**

The patient can *distract the pharmacist's* attention when busy with another patient with his/her actions.

"Even clients can distract your attention, or have a direct influence. I have had the situation where I was explaining something to a client and the person standing behind him and waiting ... you do get this, and it should not happen. But he hears what the person is getting, and then immediately tells that client what his experience had been. Or how his uncle and auntie had done the same thing, and done it in this or that way. This is not always in line with what you as pharmacist wanted to explain. Sometimes when patients go on holiday they forget their medication and this is something outside our control. We cannot go and pack medication for patients. We also get people from other towns who come visiting and then they look for medication."

- **"If he does not have money for medication, he is not going to buy it."**

Patients do not always have enough *funds* available to pay for the medicine he/she needs.

"If he now really does not have money for medication, he is not going to buy it. You have no way out because if the patient does not have the money to pay extra, then you must give him what the medical fund is willing to pay. If the medical fund is depleted and there is no money and they do not have the money to pay, then they are not going to be taking the medication. Life is getting to be more and more expensive. It feels to me as if people have it more and more difficult. If I now

just think of how many people have come into my Corporate Pharmacy D who said that they only wanted a quotation. They only want a quotation and I know by now that Corporate Pharmacy D is definitely the cheapest and they are not really going to another pharmacy. I have heard people saying when they come in: "Yes it is so much cheaper than here or there". So I know it is the cheapest but they still only want a quotation. So prices does play a big role for the patient. I am not really paying much attention to the money yet, and this is why it has not been possible for me to retire. I play Robin Hood. If a GP car (from another province) stops here, then I add 150% to his price!"

- **"So in between all those other things we also have to arrange chronic medication for them, send faxes, phone medical funds."**

Pharmacists feel responsible for always acting on the *needs* of patients and assisting patients with chronic medication administration.

"The doctors also do not always have time to do these things such as arranging chronic medicine stuff and they look to us to arrange chronic medication for them. So in between all those other things we also have to arrange chronic medication for them, send faxes, phone medical funds. Medicine B is not authorized on chronic and we have to call the sister for insulin and explain how does it work and motivate. So all those things that are there outside is simply beginning to be a rat race. The pharmacist has to help but why should you help the guy if he takes his medication away from you anyway? You as a professional want to help the guy with his chronic medication, but you help him to get his medication from another pharmacy. The doctor now also sends the form to us and asks us to help the patient get his stuff on chronic, and we help the doctor but the patient then gets the medication in the post."

- **"If people can think sensibly about something, they would rather buy their medication from one place because there is a profile on file for the patient."**

Some patients prefer to do *pharmacy hopping* and get their medicine from different pharmacies, a practice that does not always enhance adherence.

"As you sit in very small Town K, you can exert control because you know Auntie Sannie. She buys a little bottle of Medicine A every day. So after a while you tell her: "Auntie Sannie, you have to take it a bit slowly. This stuff is not good for you". Or take Medicine B as an example. I say to a woman one day: "No, Duifie, I can't sell Medicine B to you like this anymore". She left the pharmacy, and the following day she was back and she said: "I got four bottles of Medicine B in City Y". Four times one hundred tablets of Medicine B! How do you control that?" This patient has been coming to the same pharmacist for ten years, and the pharmacist now knows that if he buy something for a cold, he do not even need to say that he has high blood pressure, because

the pharmacist knows. This is very important for me. If the patients can think sensibly about something, they would rather buy all their medication from one place because then there will definitely be a profile of the patient."

- **"Our pharmacy, of course is in a somewhat different situation than the rest."**

Pharmacists also have to deal with patients with *special* circumstances.

"Our pharmacy, of course, is in a somewhat different situation than the rest. See, we have many students, so students often go to their home towns during holidays, and then you cannot see whether they use their medication every month as they should. Fortunately students do not get so much chronic medication, but there are always medicines for cholesterol, blood pressure and especially anti-depressants. We have many University personnel who go to conferences, and who go on leave for two months and then want their medication in advance. If you give medicine for two months and you do not really have control over how they really use it, one would assume that they are highly educated people and that they use their medicines correctly. The risk for us is if the medical fund will pay".

"Many of the special patients are not like you and me so you cannot go and tell him: "Listen, this medicine does this, that one does that, and that one does that and so on. The special patient will in any case not remember as the patients out there don't even remember it. There is now a special patient with his eyes closed and he cannot open his eyes such is the side effects of Medicine R. If you give him something that phases out after 14 days, he does not want it because he does not want to feel bad. As he is already feeling bad, he does not want to feel worse. The patient adherence is very bad. Very, very bad."

4.5.2.8 Postal Pharmacies

- **"Sometimes they will simply for ten days not use the medicine because Medical Scheme G has not delivered, and they refuse to pay for those ten tablets."**

Postal pharmacies deliver *chronic medicine* to patients all over the country by means of courier services.

"Then the courier pharmacies came in and they took away my chronic medicines and I am very negative about that. Extra factors which influence us are "through the post pharmacies". It is chronic medication that gets delivered over the post. This is a big problem for us. It takes the bread and butter off our tables. The postal pharmacies have contracts with Medical Schemes to render the service to the patients of that Medical Scheme."

"I cannot say that preferred providers are not a big problem with us except for Medical Scheme P and Medical Scheme G. Medical Scheme G that especially want their people to have the medicine delivered, and then they deliver late and then their patients have to get the chronic medication through the acute because Medical Scheme G does not deliver. Sometimes they will simply for ten days not use the stuff because Medical Scheme G has not delivered, and they refuse to pay for those ten tablets. She was on Medicine E twice a day and then for three months Medicine E was unobtainable. We then arranged with the doctors for her to use Medicine I twice a day. She said yesterday that from Medical Scheme G she had not obtained either of the two. She's received Medicine A which I as a pharmacist learned that you had to put under your tongue when you got a heart cramp. It is not a b.d. (twice a day) dosage and it is not a t.d.s. (three times a day) dosage!"

4.5.2.9 Public sector

- **"The plans that we would make is that we would start a private pharmacy."**

Medicines are also not always available in the public sector for various reasons.

"Do not even talk about stock! We still have the depot in Town M and I have to show you our back order list and this is not fancy stuff, such as Medicine I and many IVs that we hand out, these are essential things. When we call them and ask why there is no stock they will never give the right answer. My opinion is that the stuff is not paid. We work directly with the Medical Stores and our delivery is once a week if you are lucky and you don't even get stock. I do not know how Hospital P does it. I do not know how they help those hundreds of people every day without stock. I simply do not know how they do it. I do not know how well the state distributes medicine to their clinics. With the state – this is my own perception – there is possibly a problem with payment as well because the manufacturers are not going to provide the medication if they do not get their payment. We have a specific series of medicines on the code list and patients come to us and then we do not have Medicine A or Medicine B or whatever the generic is. The first step then is to find out whether the patient still has medicine to go on with. If the patient does not, we have to make plans and try the private sector. Usually when it comes to the point where we say we do not have stock, I have already called the depot to hear what is going on. They do not really care how you get hold of it and they just do not have any in the store. They will tell you that they have already followed up to the firm, and the firm cannot deliver. Or the firm will only have stock in four weeks' time. We have now, in our own setup, arranged with the retail pharmacy to provide certain things on a small scale which we now get and hand out until our stock comes in. We had part of our budget which we used for such special cases and then we bought it out. The other clients from the state do not get medication. If I have to tell you how many "illegal" state

envelopes my private pharmacy fill up with that same medication again but people are not helped at the state. When they get there, there is no medication.”

- **“So stock is a massive problem.”**

Stock and the management thereof are perceived as a massive problem by the pharmacists in the public sector.

“If I now have to think of the biggest part of the problem with the pharmacy it is stock and this is what I sat with every day the whole day. If I now specifically look at the public sector what is a big problem is stock. Stock is mine and for 99% it is out of my control and I do not know how to ... I just can't. So stock is a massive problem and we have very poor guidelines but there are many obstacles because I have run into problem and then I cannot get that stock at all. Then you try to convince the person to buy it himself, which of course did not go down at all. I think it is one of the biggest, but biggest, problems that are out of our control.”

- **“The budgets are inadequate. We do not have enough money to buy medicines.”**

Budgetary constraints in the public sector have a detrimental effect on the availability of medicine to the patients.

“In the public sector I know that the “out of stock” situation is usually because of budget. Our “out of stock situations” in the private sector are physically due to a shortage among providers as a result of packaging that changes or a shortage of active ingredients or the basic materials, that kind of thing. If I think of other obstacles, it is money as the budgets are inadequate. We do not have enough money to buy medicines and there is not enough for the financial year. So now we come to the end of October and the money is almost finished. So this is part of our stock crises”.

- **“We have not got a computer. When I started working, we wrote by hand.”**

Infrastructure that is old, broken or not up to date or lack of facilities make it very difficult for the pharmacist to perform his/her professional duties.

“I do have to say that if you look in general they are busy upgrading the places. Our place has been upgraded and it is looking very clinical and very neat and nice. But if you should go to Town A again, then it is just the opposite. It does not look good and you simply feel sick if you go in there because it is not always clean and it is simply just a cubicle that you have to stick your head in. There is no proper consultation area where you can talk and you also just put down the prescription there and you wait and they call. It makes one think that the measures that the South African Pharmacy Council is using to effect these modular consultation areas are intended for more privacy is an important thing, because it can eliminate some of those external obstacles.

Lack of facilities as you might say, as we are two pharmacists, with one computer and one printer. This is ridiculous. We have now received a computer but when I started working, I wrote by hand. What you do is, beforehand, you copy all the prescriptions, one hundred and twenty for the day. Then let us say tomorrow you are with outpatients then tonight I stay late, and I pack all those prescriptions in advance. So, in that regard the state is really backward. Systems and technology, absolutely."

- **"There is no communication. Everybody is waiting for everybody to do something."**

The management of *health related information* from higher up in the structure is not communicated to the pharmacy level.

"We had it once that a person was raped. Are we allowed to give ARVs, are we not, what is the procedure, what is the policy? So how do you handle it, because the patient is standing right in front of you and we do not really have guidelines from our top structure as we do not get things through? If there are new policies or things changes, we do not always get these in time. We hear of it and then the pharmacist on the ground do not always know what to do then and there is no communication. Everybody is always waiting for everybody else to do something. Our clients never hear on the ground what it is that they must get or are allowed to get. They do not always have access to the original medicine. The communication about that, down to the ground floor, must not only happen via the pharmacist. Perhaps in another way communicate with their clients what are the options on their medical. They do not in all instances have access to the originals"

- **"So in effect you feel useless."**

The assigned *role of the pharmacist* in the public sector is perceived by pharmacists as detrimental to providing information to the patients.

"I also get a little tired as it feels as if you are in the civil service because your purpose is to dispense prescriptions. The days of giving advice and so on have become dampened. Your professionalism is very limited and I think that you yourself allow this to happen. The system is such that you cannot give a great deal of advice. You want to help everybody and get them out quickly so you give the minimum of advice. I do think that giving advice is part of your professionalism and the image that you want to project. But everything is here in front of you and you do not think any more as it is simply your prescription and read it and get it out. It makes a great difference because it takes away a bit of your power. In the retail pharmacy I could still say to somebody: "Man, let me give you a packet of Medicine L on Schedule 2, fifteen until you can get to the doctor." You are not allowed to give that patient in public sector a tablet or Medicine P

if it is not written on the card because then they say that you took it. So now a patient has to pass through the whole system again and he has already waited for three hours. He has been here since seven, and it is now ten o'clock. It takes away a lot of the power of the pharmacist as you could do that schedule one and two and I feel that you can go quite a distance with it. You can't even prescribe it so you really feel very useless. It is a whole schlep from day to day just to get the medication to the patient. I think that the people in retail pharmacy are frustrated but I was there and I worked those hours and it is not nice but I think the pharmacists in retail pharmacy do not really realize what they have in terms of support systems from the side of the company."

- **"You cannot leave the pharmacy open as you are on your own."**

Not enough staff (pharmacists) are available.

"I think that it is still going like that in many state organizations. That those guys are really neglecting their patients. You work in a Corporate Pharmacy D and there is a queue but you at least have the tools to have a five-minute gap to tell the person something. You have a problem in the Public sector hospital when that patient has a query about the prescription. I will tell him: "I am picking up that you are getting two asthma pumps, two cortisones, why?" but he tells me he does not know. Now you as the pharmacist cannot go and see the doctor because you cannot leave the pharmacy open as you are on your own. All you can do is to chase all the people out and say 'I am going out to see a doctor". So you either have to leave it or try to call the doctor and hope he is still where he was a little while ago and that he has not gone back to the ward. It is chaotic and you are the only guy. If that patient's has changed because the doctor has seen him and he is picking up this little something, you have to turnover everything and you have to go and pick up drugs, but you are alone there. I did this for six months. I think it is an external hindrance and yes, you do not really have control. It is absolutely external hindrances. The medicine prepacks are for a month and there are wards that need less attention. You are dependent on that nurse who will on that day open that little thing and will he give the patient all the pills and will he check the script and will he chart or will he not chart? The only way I can pick up a problem is when they have the script with them and then check and correlate. If you look at Public Hospital A, we have a big problem because Public Hospital A is so busy that he never looks in the patient's eyes. They work on a system of numbers from one to whatever and you take a number and if you hand in your script you are that number. I have also worked in clinics, and it is, really it is rough. I do not have an immediate solution for it but they are very under-staffed and patients wait for their medication for a long time so they need a full day to go to the clinic and to sit and wait for their medication. If these are people who do not work it is easy, but I mean there are those who work and they cannot, if they are contract workers, just sit there and wait for their medication. With medicine such as blood pressure medication it is not something that you feel when you do

not take it and they easily skip it and think, augh, I will do it later, and then they do not take their medication as they should.”

- **“My wife visited me at work more than she did at home!”**

The *workload* in the public sector is very high and pharmacists have to work after hours to get through a day's work.

“If somebody asks you something, you give just the minimum information. There is no time for counselling and you are absolutely just pill pushers. The state dragged its feet and dragged its feet and we got the pharmacist in July after six months we got a pharmacist. My wife visited me more at the work than at home and she even helped me fill packages because if you have to pack a hundred and twenty packages per month I stacked that counter.”

4.5.2.10 Responsibilities and workload of Pharmacists

- **“Today especially it is easy to be caught up in the admin role that the pharmacist has.”**

The pharmacist has, apart from his role to give medication to patients, also various other *responsibilities* that require a lot of attention from the pharmacist.

“Especially today it is easy to get caught up in the admin role that the pharmacist has, because if you work for a large group and it is a busy pharmacy and there are deadlines and it is business. You are no longer just the pharmacist who dispenses because you must also do management and you have all sorts of things that you have to do, and check, and fill in and the pharmacist intern must do things, and portfolios, and I don't know what else. We have really many clients and patients and you just keep on trying and I have not seen that one for a long while, so I look at the profile and see whether I should not call and say please come and fetch your medication and ask: “Have you stopped using the blood pressure medication? Is your blood pressure down or must you simply come and fetch it?” It is important to stress the importance for a patient to come and prevent problems in future. If you see a client every eight minutes of the day, then I don't know when you do all the other things. You need the assistants and your interns, and they have to get this training. In Pharmacy Group S I was also a tutor for assistants and we did it during lunch times because they look at you big-eyed if you do it during working hours. So then I felt I might as well do it during lunch times.”

4.5.2.11 South African Pharmacy Council (SAPC)

- **“I do not think that they look out for us.”**

Some pharmacists feel *alienated* from the SAPC.

"I have to tell you, I do not really like the Pharmacy Council and I don't think that they care for us. I think they spy on us because I had a case and I am telling you now about it. I was the responsible pharmacist at Corporate Pharmacy C in a neighbouring town. We gave a woman the wrong medication and I was fined R16 000 and I had to pay. I did not get any sympathy from the Pharmacy Council. Nothing. They just said I had to pay. It was a mistake and I accept that because I was the responsible pharmacist. When we went to the Pharmacy Council, there is a that girl who works in reception. She is in charge, in charge of everything. My husband and I could check things out properly. Now there were five wire baskets and the one was for Corporate Pharmacy Group A and one was Corporate Pharmacy group B and one for C and the one was for postal pharmacies and one was for "other". Us poor "other" pharmacies did not exist in the country because one could see it from the size of the baskets as well!

4.5.2.12 Single owner independent pharmacy

- **"But I really pity the lone operator."**

Pharmacists are under the impression that *single-owner independent pharmacies* are under enormous pressure to survive from day to day.

"You have to have a good turnover to really survive at the end of the month. I work for Corporate Pharmacy D and I am very grateful but I really pity the lone operator. With regards to the pricing structure I also feel that the Pharmacy Council has forsaken us. It is only the big guns who will survive with a mass turnover and their front shop. In the very small Town K my front shop helped me survive. I did a little bit of state medicine and they took it away and I was negative about that. Then the mine closed and I had to leave".

4.5.2.13 Staff

- **"There is an assistant next to me who is impatient and rude and you get negative feedback"**

The attitude and behaviour of your *pharmacy staff* can have a negative impact on the professionalism of the pharmacist and the pharmacy.

"Then one is faced with front of shop staff who did not have that training and it is simply a day-time job for them. The card machine did not work and the saleslady told the woman that it was not her problem and that the client had to make a plan. There is an assistant standing next to me who is impatient and rude and you get negative feedback. Staff can distract your attention because sometimes you are busy with a patient and you simply by chance hear that the staff member is not communicating suitably with a client standing in the front of the shop and this

distracts your attention. I usually listen to hear if it is serious and whether it is necessary to do something about it immediately, but it does distract you from what you are actually doing at that moment.”

4.5.2.14 Working environment

- **“But then there have been days when I went 8 hours without going to the toilet.”**

Some pharmacies have such *busy schedules* that pharmacists do not have time to either eat, rest or to go to the bathroom.

“Then sometimes we get a chance to sit and eat for 10 or 20 minutes. So some days it is not as bad as other days but then there are days when I went for 8 hours without going to the bathroom. The external obstacles also influence my attitude, because sometimes, and this has happened especially when patients keep on coming and coming, that I become dizzy and nauseous so that later on I can’t see what is on the prescription. In such an event it is an external obstacle, because obviously your brain needs carbo-hydrates to function, and if you do not physically get those nutrients because patient after patient enters, and you do not get a chance to eat, that is not under your control.”

- **“This is what one does and one throws away masses of stock.”**

The pharmacist needs to manage his *stock* very well as medicines do have an expiry date after which it is illegal to sell such medicines to the public. The medicine then needs to be destroyed.

“I am sitting there and ordering medicine. You order on the basis of averages but I do not know whether these patients have left, so you keep on ordering that medicine. Sometime you are going to notice but this medicine is not being used at all anymore, but your system still says that you have to order, but the patients have left to the postal pharmacy. The medicine are to be expired and the doctors do not want to use and the medicine is useless and then masses of stock have to be thrown away. The doctor prescribes Medicine A and then you buy twelve of it and you keep it on your shelf. The doctor then decides another day that he likes Medicine B more and he will prescribe it every day. Then you have twelve of Medicine B on your shelf, and Medicine A stands and gets old.”

- **“And everything descends on you at the same time.”**

External factors can put *extra pressure* on the pharmacist in his consultation with patients.

“I have had many obstacles for example and I just have a feeling it is one of the biggest challenges facing a pharmacist, and which has a direct influence on the way in which he deals with his

patients. Obstacles can negatively influence adherence from the side of the pharmacist which can cause him not to communicate effectively. It can influence both the pharmacist and patient. For example the place where I working over the weekend, they are working next door to enlarge the space, and there is this drill that sounds like a jackhammer. If you are dispensing under those conditions you simply want to finish as quickly as possible and the patient can barely hear you and he is irritated and you get irritated. I think this influences the communication process badly. Environmental noises such as noise, deliveries while you are talking and so on are bad. I had to go and locum and I drove to neighbouring Town S and when I got outside the town I discovered that I had left the key at home. There is only an hour's "after hours" that we are open in Town , so I had to turn around, fetch the key and drive back, and I was only ten minutes late. But when I got there, there must have been ten or twelve cars waiting and they all descended on me. I think this has more to do with those external obstacles that come into being. Then you are sometimes under great pressure which can affect co-operation quite a lot. The fact is, you yourself, is in something of a spin, and you simply try to keep everybody happy and in that context you try to do things as rapidly as possible as they come up."

- **"Like, telephone lines and internet lines are not working."**

The pharmacist is dependent on the *infrastructure* in the pharmacy to render a professional service to the patient.

"Like telephone lines and internet lines are not working. If I now look at the situation yesterday when our lines were down, I could have sent all the patients away if I had not been in the mood to help them. You have to have the right attitude. I see that assistants are sometimes impatient with older people and black people, or with the computers that are off-line and they are simply impatient. If you get away from dispensing for a while, and you land in the consultation room. Sometimes there are things that you need such as forms for documentation, or it is not there, and this prevents you from making a good note at the end of the process which would be followed up later. What could have contributed to better adherence but is lost."

- **"The telephone is a big nuisance"**

The telephone in the pharmacy can intrude in the interaction between pharmacist and patient.

"The telephone is a big obstacle because you might be busy with a patient, perhaps a complicated matter, then you have to take a phone call. The owner for whom I worked always said: 'the telephone is like somebody who jumps a queue'. Often we see that people come in, and when they see the row they shout that they will phone in their order. In other words, it amounts to jumping the queue. I think this is a problem. It is an interruption because then the patient might

not necessarily have the time to wait, perhaps for fuller instructions or better advice. Time is money. The moment when you have a lot of time to spend you lose potential income which you could have got from other clients. People do not have time to wait and then they get impatient and they leave. Patients who phone and who want your attention immediately while you are busy with another patient. I feel that the patient in front of you deserves priority. He has taken the trouble to come in, and it does not matter what information the other person needed – it is a matter of carefully managing ... So that phone call will probably be a message and you will have to call back. Experience tells, however, that when the pharmacist does not call back immediately, then the person at the other end of the line feels bad, because you do not call back before four. For the pharmacist to say between the one and the other I am simply going to answer the question quickly, because there is no time to have a conversation about the person's cat or dog".

4.5.3 Disposition

The reader will now be presented with the second of the six affinities. The affinity Disposition is a secondary driver of the system named Pharmacists' perceptions of their roles in medication adherence. The axial coding of the individual interviews revealed a total of five sub-affinities for the affinity Disposition. The five sub-affinities will be named in *Italics* and where the individual sub-affinities consist of even smaller elements these will also be named.

A graphic representation of the sub-affinities of Disposition is presented in Figure 4.2 and the discussion of the sub-affinities then follows.

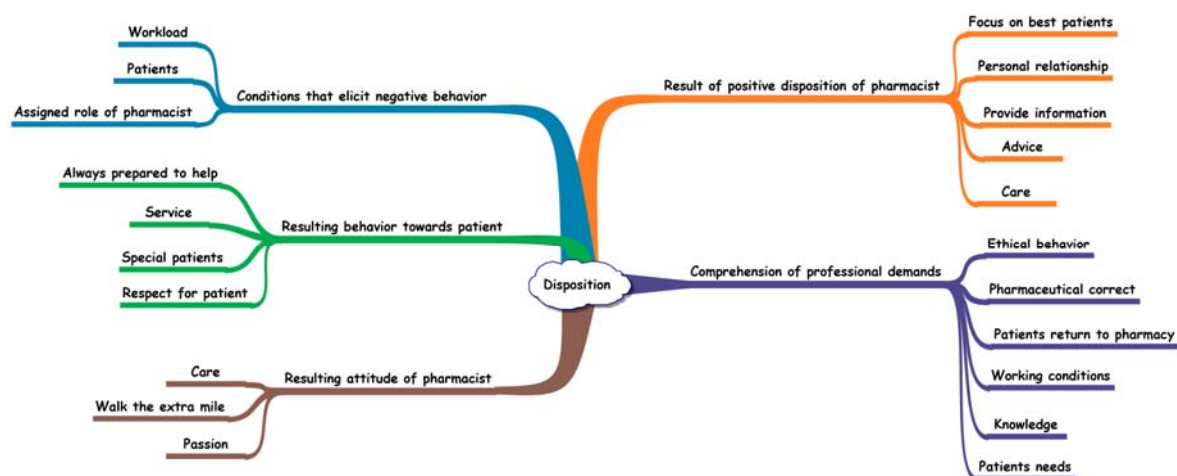


Figure 4.2: A visual representation of the sub-affinities of the affinity Disposition

4.5.3.1 Conditions that elicit negative behaviour

- **“But when it comes to some of your patients, then you do not tend take a lot of trouble because of previous experience.”**

Due to previous negative experiences with a particular *patient*, the pharmacist could find it difficult to enthusiastically help that patient.

“You know all your patients and you get tired because you already know which patient it is. So if that patient walks in the door, you immediately feel: “I am not in the mood to help him although you try hard to help him with all the medicine on the prescription which is written down. You give him the necessary information but when it comes to some of your patients, then you do not tend to take a lot of trouble because of previous experience and you do get exhausted. The system does not only allow you to be creative and do a little extra. Something that also influences my attitude is the cognitive ability of patients, and their ability to have a logical discussion because you do get, and it sounds terrible to say so, you do get patients who are simply dumb. There is no other word for it, they are simply dumb.”

“On the one hand it is nice for me there in the public hospital with special patients because I really feel that the client is not the type who walks in as in retail pharmacy and is demanding and he wants this now and his fund is depleted and now he is mad at you. I do not miss that at all but that relationship that you build with patients is gone.”

- **“People get very conditioned in the situation in which you work. You can only give what you have ... you do not take a lot of trouble. You get exhausted in the system.”**

If the assigned role of the pharmacist is not in congruence with the pharmacist's own expectation thereof the pharmacist could have a negative attitude.

“I worked in a pharmacy where I think we were twenty pharmacists in a row and I did not touch one pill or tablet during the entire working day. You ring your bell, and patient comes to you, and they do not want to chit-chat. You understand that the people want to get their meds quickly and you have never seen the patient and you dish out the medication. Or you dispense it on the computer and the patient sits down, then he prints the prescription copy at the back and the assistants make up the prescription. There is one pharmacist and all he does the whole day is standing there with a mike and calling: “Mr. X, please come to the front” and he checks quickly whether the stickers are right, as well as the physical medicine, and he just hands it over. So I think that under those circumstances a pharmacist can get pretty negative, because he only plays an admin role. You have no role in explaining anything to the patient, and that type of patient is also conditioned to only take the medication and he asks the doctor if he has any queries. I think

that if a pharmacist really plays his role in a community pharmacy, where you know your patients and have a relationship with them, it would be harder to become negative. Then you will be fulfilling your role as a pharmacist and if you are only doing something that unfortunately often happens nowadays, it is easier to become negative.”

“You have a number of files in a postal pharmacy. This is like the month goes in a cycle and you have to phone the patients and I have to put it through. You get up for an hour, as the packages have to be checked as there are packers. You just have to check that the right amounts and the right medicines, and the right labels are on, everything is there before the packet with medicine is posted. You never see the patient and you do not know whether they even use the medicine correctly once they get it at home. You do not have that kind of relationship with the patient.”

“People get very conditioned in the situation in which you pharmacist work. You only give what you have. You do not take a great deal of trouble. You get exhausted within the system. So you get irritated at the end of the day. You are not in the mood to help people, and you don’t want to see them because you cannot help them. You cannot do your work. You cannot function.”

- **“In a work situation where your load is so big, your pharmacist is not that worried about you as a patient anymore.”**

A heavy workload that over-burdens the pharmacist will lead to the pharmacist not having enough time for interaction with patients.

“In a work situation where your load is so big, your pharmacist is not that worried any more about you as a patient anymore. If you work under such pressure you are very focused only to give what is on the prescription and the communication and the relationship is not that good but you walk the extra mile even while you try to limit it.”

4.5.3.2 Result of positive Disposition of pharmacist

- *“It depends on whether the pharmacist really cares for his patient and the general well-being of the patient.”*

A positive Disposition on the side of the pharmacist will lead to positive behaviour towards the patient such as extra care, walking the extra mile and helping the patient.

“The disposition of the pharmacist towards his patients and also the relationship with the patients. This depends on whether the pharmacist really cares for his patient and the general well-being of the patient, and whether it is only a chasing after the number of prescriptions. Is the pharmacist really there to look after the well-being of the patient and his general well-being, or is it a question

of: *“You get your meds, and I get my money and that is the end of the transaction”. This has a great deal to do with the attitude and disposition of the pharmacist.”*

“We pharmacists would really like to help patients with medicine because they are our clients and they keep us going especially during holiday times when the students are gone. We do like doing it but I would like to stress the risk factors accompanying this. You have to follow the ethical rules and if somebody comes to visit and has forgotten his blood pressure pills, help him for three days. Ethical Rule 6 also says this and makes provision for it but you get pharmacists who simply say no, and this is also bad.”

- **“Just give him all the options so that he feels that he is halfway part of the process.”**

Provide the patient with information and options when difficult situations arise in the pharmacy such as the unavailability of medicine so that the patient can experience that he/she is part of the process.

“We have now tried to replace medicines for patients in a case where Medicine A was out of stock with Medicine B for those who were receptive to the idea. For those who were difficult, they simply took a few of the alternative Medicine B and said they would wait for Medicine A to come in again. Some people still had some left from the previous month’s prescription, and said they would wait and see whether it came in. This is now an individual approach depending on the situation of the patient. We did however have a reasonable number of people who were willing to use the alternative.”

“Then I want to stress again, it is perhaps how you as the pharmacist say a thing that leads the patient to say: “No, fine, I understand.” “Sir, this medicine is out of stock, but we will quickly call your doctor and if you do not have the time to wait now, please come back later”. Just give the patient all the options and then he will feel that he is part of the process than to just say to him: “Listen, I can’t get it now, it is not available.”

“One must tell oneself to prioritize. Tell the patient what he needs to hear about his medication, not what he wants to know. What he must hear, the necessary advice and then if you see that the patient wants to socialize a bit more one can do it. But do not keep on visiting for so long that the guy is out of there without his knowing about his medication. It is quite important for me, that.”

- **“It is quite scary to think about, but we even get to know the names of their pets – we are that close together.”**

When the pharmacist gets to know the patient on a more personal level it creates a positive relationship between pharmacist and patient.

"I once thought I did something good. The patients always came after work, and got something like 13 items. Then I thought it was about time again, and I got all his stuff together but they did not like that as they regarded it as an outing where they came and sat on the sofa and chatted. I had to call them and try to find out why they did not buy here anymore and I had tried to do something good."

"I want the freedom of movement in the queue even if I have to wait for the pharmacist to finish helping a patient. There is a bench to sit on, but I do not want to be squeezed into a queue. Perhaps our pharmacists' communication skills are then good, because in other words the patients have confidence in you and they want to see you. They do not want to wait in a queue and to be the next and the next. This is perhaps where the difference comes in with the large groups, that there is perhaps not that personal touch. They do not come near the pharmacy when I am not here and for me it is nice to work here full-time because the patients are fun. They walk past and then try to see that I am not here and then they come in. It is quite scary to think that we even know the names of some of our patients' pets, because we live close to them but this is fantastic, it is such things that make them come back."

- **"You won't feel it in your pocket as when you have to pay for the prescription yourself."**

The pharmacist could provide the patient with non-medical advice that may lead to better medication adherence of the chronic patient.

"Encourage the patients that if there is a chance of upgrading the medical aid: "Rather pay R200 or R300 a month more after the upgrade, then you patient will not feel it so strongly as when you have to pay out of your pocket every time."

- **"We really try to sieve and keep the good clients."**

The pharmacist sometimes tries to *focus time and energy on the better patients* and not on the patients who try to obtain medicines without prescription.

"We really try to sieve and keep the good clients and to build a good basis of good clients. If a patient does not want what he has too on prescription, then he must go and look at another pharmacy."

4.5.3.3 Pharmacist's resulting behaviour towards patient

- **"We try and help the patient within our abilities and not to send him away empty-handed."**

The pharmacist is *always prepared to help* the patient to the best of his ability without letting his personal situation get in the way.

“Attitude is a very important thing and that is the thing that when you have a problem, you leave it at home and get over it. If you have not slept well, you get over it and carry on because a poor attitude for ten minutes can do so much damage. This is also where the trust comes in. If they know that the pharmacist is always ready and willing to help and he is not only open to help on certain days. “Attitude is 24/7 and that is really true. You have to be the same every day, and be willing and put in that effort. It cannot be reserved for certain days and leave certain difficult days as that does damage. You, the pharmacist, must absolutely try to have your attitude positive even if you feel bad on the day. You must not have situation where a patient tells you: “I am feeling sick”, and then you say: “But have you heard about how sick I feel?” Your attitude must be that the patient must feel that he/she is now the most important person here. You are a person, but your illness and your problems are not important for the patient, because he is coming to the pharmacy for his own problems. If you want to see the patient about your problems, then you make an appointment. Your attitude must be that you want the person in front of you to get well through your help.”

“We, pharmacy and pharmacist, still have good relationships. We try to help the patient within our ability and not to send him away empty-handed. We will always propose an alternative.”

- **“The respect that you have for the patient is important, because that determines your attitude.”**

The pharmacist will always maintain the utmost *respect for the patient* irrespective of who the patient is.

“We pharmacists try to keep up that relationship with the patient, that if a patient enters he must feel important. That he must feel that he is not simply here for his medicine and is not part of a sausage maker. We really try to go out of our way to build that relationship. The older patients have over the years built up relationships with us and you know about his dog, his auntie, his uncle. You know everybody and you know where he lives, you know the initials and you know everything about them. Auntie Sannie is used to talking to you over the phone for half an hour about her problems but it is now so busy that we cannot do it anymore. The relationship is still there but a guy must maintain that professionalism and let the auntie understand: “You can talk to me for five minutes and you do not have half an hour any more to talk. We have to try and help you in five minutes because the queue extends to outside the door.”

"The respect that you have for the client or the patient is important, because this determines your attitude. Your attitude can be influenced by the fact that you note that the patient is a private patient who pays for his own medication and the medical fund patient. Or you have a person with a high standing in society, and then the other person ... The respect that you feel for the patient you have to normalize or standardize so that you consider all patients equal. If you cannot maintain a standard respect profile, then it could be that you disadvantage some patients with regard to the communication that you do to spend time, and this can indirectly have an influence on adherence. It should not matter whether he is poor or rich, and what race he is. If the pharmacist is not able to keep his respect for patients very standard, then it can really influence the adherence in some way."

- **"In some way I enjoy it because I almost feel as if those patients have been half dumped by society."**

There are always *patients with special needs* and circumstances who challenge the pharmacist.

"I enjoy it in some way there because I almost feel that those patients have been somehow dumped by society. They do not have somebody and I actually enjoy it in that regard. But I am not trained and I cannot work with those people. You do a good thing for the patient, but he does not know who you are and he does not know who he is. I do not even know what my patients look like. I cannot tell you what patient P looks like and I have been working with him for a year, and I see him on paper every day."

"The attitude towards the disease condition of the patient. There might still be – and I hope this is not the case – be pharmacists who look down on patients who are HIV-positive and feel that they are not really patients that they want to treat because there is a stigma attached to the disease. One deals here with the attitude towards the disease as well that the pharmacist should be professional enough not to make a distinction between disease conditions but must in general be interested in the patient's well-being and health."

- **"For each patient we keep the specific medicine so the variety is there. They get from me just what they ask for."**

Pharmacists with a positive Disposition are *service-driven* and put services in place to the benefit of the patient.

"One of my poor clients, a 23-year old girl came in for a flu injection when I said: "But you are sick, I cannot inject you" but she said that she wasn't sick, she had only cried. She'd cried, because the social worker had that day removed her seven-month old third child. Then I wondered what service that child would get from Corporate Pharmacy D or Corporate Pharmacy C or let us rather

call them corporates. Those people now come and seek service even though it might be a little old lady who, on Christmas Eve, cut her finger on purpose so that somebody should touch her. For each patient we keep the stuff (specific medicine) so that the variety is there. They can simply ask what they need from me."

4.5.3.4 Comprehension of professional demand

- **"The pharmacist must have knowledge of the specific disease."**

The pharmacist must have appropriate *knowledge* to ensure a professional relationship with the patient.

"Information and knowledge have a big role to play here. The patient cannot help that he has contracted a specific disease and even though it might, for example, be AIDS, which they say is a self-inflicted disease. There are patients who are HIV-positive because of other reasons and it is not to say that it is because of low moral standards. The pharmacist has to have the knowledge of the disease and he must realize that he is in a profession and you cannot deal with your patients differently on the basis of a disease that they have or on the basis of your perceptions of that disease."

- **"It is pharmaceutically correct if you are working under pressure and you have to mix an ointment that takes time and other people have to wait."**

The pharmacist as the custodian of medicine should never succumb to external pressures and then dispense or handle medicine *pharmaceutically incorrectly*.

"If you manage to act pharmaceutically correctly and scientifically or clinically correctly, the pharmacist's attitude tends to develop in that direction. Pharmaceutical correctness is when you work under pressure and you have to mix an ointment that takes time, and other people have to wait. Then it is so important that you should deal with the product correctly and that the labels on the product are done correctly. This has to do with pharmaceutical correctness. I had a case last night where the doctor had actually prescribed a mix of two fluids and I know that if you mix those two there is a sediment that does not look good at all. And I had to, even though there were many people waiting, give out the two fluids separately and explain the dosage, and say that they could mix them just before giving them to the child and I gave them the reason. If I had simply succumbed to the pressure, and mixed them, you know that the product will not comply with pharmaceutical standards and then the outcome can be negative."

- **“People will talk to each other: “Listen, at that pharmacy they care for you””**

A positive disposition of the pharmacist and good service will be beneficial for the pharmacy as more *patients will return to the pharmacy* for service and help.

“The attitude or disposition is incredibly important because the competition is strong among pharmacies. These are the pharmacies that only go for price, or who advertise widely. We the single-owner independent pharmacies also try to advertise. One should do this, of course, but this is what counts in the end. People speak to each other and say: “Listen, that pharmacy cares for you, they walk the extra mile for you, and they give you stock when you go on leave”. I think it is very important as these are the things that make people come back.”

“The manager of the pharmacy will hold his point of view that the pharmacist will still be available if the patient should have wanted to ask a question, but the system has been designed in such a way that it is the most effective way to get medication out there so for business it is the most effective way to go.”

- **“Recite the law to them and if he/she does not have a prescription, they must go.”**

A pharmacist with a positive disposition towards the patient, medicine and the profession will be *ethical in his conduct*.

“We are not interested in druggies. So, person X who comes into the pharmacy and says that he/she wants sleeping pills, and then two days later want them again but we are not interested and he/she must go. Years ago, when you as a pharmacist tried to establish a base with little money, you might have helped, but now those days are gone. Recite the law for them and if he/she does not have a repetition, they must go. Your attitude towards your profession, and the ethics and the responsibility associated with it, are an important factor that should drive your disposition and all this comes down to professionalism again.”

- **“The pharmacist – that is another kind of work. If you do it for money, you must go and find something else to do. “**

The *working conditions* of the pharmacist are not easy and relaxed and the pharmacist needs to have a positive Disposition towards the profession, patient and medicine to be able to be friendly and having a positive relationship with the patient.

“Being a pharmacist – that is another kind of job. If you are doing it for money, you should rather go and find something else to do, because you really have to commit. You are on your feet for long hours, your legs ache, and you have to remain friendly. You have to concentrate, as it is important and you cannot be impatient with the people because they can see it.”

"You see more people at work and you spend more time at work than you spend at home. For me as a manager and pharmacist, it is very important to create a good work environment. The pharmacist should not get up and think: "Ah, (X#@X) now I have to go to work again!" It must be nice for him and he must feel that the people who are there look up to him. All the things that he needs are there and he is being paid a good salary but this should not be the only motivation. As soon as you have created a good work environment, he will automatically be positive, and for him it will be nice to go to work. Give the people enough time off, given them enough leave, so that he still has a life outside his work."

- **"Can I not just tell her that it is the same stuff?"**

Patients who are not clients of a particular pharmacy might put pressure on the professional conduct of the pharmacist by requesting assistance with delivery of medicine and Medical Scheme information that leaves the pharmacist feeling that he could rather use the time servicing his own clients than other patients' needs.

"The patient from the postal pharmacy now got these pills from Pharmaceutical Company A, instead of his Medication D from Pharmaceutical Company C. The wife of the patient is asking the retail pharmacist: "What pills are these and why is he now getting these things? The retail pharmacist say: "Auntie, sorry, I don't know why he is getting it: but she is unable to find an answer there so can I tell her whether it is the same medicine? This is our time, those 20 minutes. Those 20 minutes I could have dealt better with the row standing in front of me."

4.5.3.5 Resulting attitude of pharmacist

- **"That pharmacist with an absolute passion for it stands out above the rest."**

The resulting attitude of the pharmacist with a positive Disposition towards the patient is a friendly pharmacist filled with passion for his profession and trusted by his patients.

"That pharmacist with an absolute passion for his work stands out above the rest. It was sometimes exhausting because in the evenings, you comes home and you falls down on the bed. It is that constant intensity that helps you to keep your attitude right. What the manager always said is that if this patient irritates you, and he turns around and leaves the pharmacy, then there is a next patient in front of you. Then you have to change that attitude, because the one you are mad at is already out of the door, and here in front of you is a new client who has done nothing wrong. So do not be irritated with him. I am not saying it is always easy, but this is what is meant by attitude. If the pharmacist is positive, and he has a passion for his profession, then he will automatically do more for his patients. He is not going to think "Aw, (@\$%X), not another prescription. Can't the patient not wait for the next pharmacist to help him? You know, it is almost

six. If you have personal problems at home, leave them at home. There are those pharmacists who really add value clinically, I think more than the patient expects. The patients then tend to go to his pharmacy. It is then the pharmacist and not only where I get my medicine. It is friendliness, listening, communicating. The management sometimes appoint a pharmacist and they find out their mistake later. How do you appoint someone, and you see him or his CV and everything looks very grand and afterwards the management realize that this is really a difficult bloke?"

- **"That extra mile that you are willing to walk for the patient."**

To walk the extra mile with the patient is purely an individual decision of the pharmacist based on his positive Disposition towards the patient.

"The medical schemes audit the prescriptions. I will then help them with stock for a few days for cash. Telling them: "This is the situation – either you pay R60 for a prescription, or you pay cash now" just to help the patients for those extra few days. Sometimes being a little nice and walking the extra mile from our side is also good to explain to them why they cannot now receive the medicine if they do not bring the prescription with them. I could have shown away patients if I wanted to. There have been a few that I did not know and I said to them either you pay cash and claim back from the medical fund, or see where else you might manage with the medical fund. But for most patients I help, and those who have accounts I said: "I will claim later and then put it on your account and then when we get back online." For others I have said: All right, I will stick labels in a book with numbers and everything and will phone you about the co-payment when I have put everything through. My attitude is that I will do everything in my power when a patient has to take certain medication that he gets it and that includes phoning every pharmacy in town to hear whether they have the medication for me that the patient needs. Failing that, to discuss the matter with a doctor if it now is not a direct generic, but a therapeutic equivalent. That I am willing to do more for my patients than might typically be expected of me, simply to keep them and obviously this is good for the patient too."

- **"If somebody goes for an interview and is feeling a little jittery, give him a Medicine A."**

The positive, patient-orientated pharmacist will care for the patient within the limits of the law and ethical behaviour.

"If somebody is going to an interview and is a little jittery, give him a Medicine A. This is Schedule 3, and you are not giving him 200 tablets. Among those people who might just have been passing through, and might move to City P, will first come to you because you helped them the other day".

4.5.4 Communication Skills

The affinity named Communication Skills is one of the secondary drivers in the perceptual system: The pharmacist's role in medication adherence. Several sub-affinities were identified by the pharmacists during the individual interviews.

A graphic representation of the Communication Skills affinity can be seen in Figure 4.3. The sub-affinities are explained thereafter.

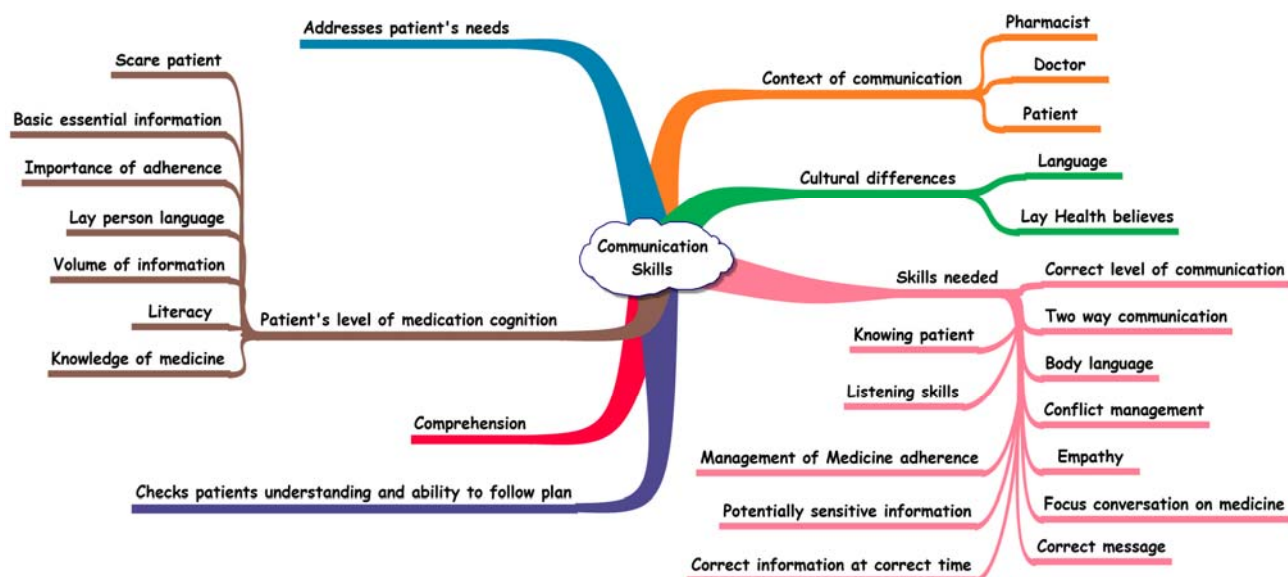


Figure 4.3: A visual representation of the sub-affinities of the affinity Communication Skills

4.5.4.1 Addresses patient's needs

- **“Communication is really the making or breaking of any situation.”**

The pharmacist will always strive to *address the patients' needs* in their interaction during the communication process.

“Communication is really the making or breaking of any situation. Suppose that a patient provides you with a medical short list and he wants medication as he has a cold. The nature of the gesture of his giving you his medical chart means: “Put this through my medical fund.” Although I always ask; ‘Sir, should this go through your medical fund?’ one gets funny people. Some do not want nitty gritty things to go through their fund and then you find those who look at you as if to ask “Now

what kind of a question is that? Must it go through my fund? Of course!” I had a woman who from year to year would blame me if I asked, and if I did not ask her and I claimed that was also wrong.”

4.5.4.2 Comprehension

- **“The pharmacist’s role is precisely to ensure that the patient understands the medication and why he should take it and specifically what each medicine is for.”**

The outcome of the communication process is *inter alia* that the patient *comprehends* what the medicine to be taken correctly, is for.

“The whole concept of ensuring that the patient understands his medication is of importance because if the patient does not understand why he has to take the medication, then there is no reason for him “to complete the course” and then his adherence is going to be very weak. The pharmacist’s role is exactly to ensure that the patient understands the medication and why he has to take it and specifically what each medication is for.”

4.5.4.3 Context of Communication

- **“So among pharmacists this is also an important point.”**

Communication between pharmacists as *colleagues* and professionals is also of importance.

“It is good in the industry if, of course, we communicate with each other and can phone each other gleaning knowledge from each other.”

- **“The communication is because the pharmacist is often a ‘middle-man’ when it comes to prescribed medication.”**

When communicating with the *doctor* regarding a patient or medicine the pharmacist must always be prepared with other information and an alternative suggestion, all for the benefit of the patient.

“I will walk to the theatre and I explain this to the doctors and I think communication is the answer there, because if one explains it to them they agree that it is in order but if Medication A simply does not come, they do not have stock. The communication is the most important, but then between doctor and pharmacist because if one explains it to them, then the attitude changes, and that is better.”

“The pharmacist has an important role to make another recommendation. It happens in a pharmacy that the doctor prescribes something and then you hear from the patient that he/she is allergic. It has happened to me, so when the doctor prescribes Medicine P, I will ask the patient which sometimes confirm his/her allergy to penicillin. I called the doctor in town and he said that Medicine P is not penicillin, and I said that it is penicillin. The doctor then prescribed Medicine Q,

but that is also a penicillin. This is now where he says: "What do you suggest?" and I say: "Let us give Medicine Z to the patient, and two tablets four times a day for five days", and the doctor says that is all right and I can do it like that. Definitely the pharmacist then has an important role to communicate with the doctor and to make a suggestion, also if the doctor is inclined to listen to it. The communication happens because the pharmacist is often middle-man when it comes to prescribed medicine. This cuts both ways, to the side of the doctor and to the side of the patient. I have often in the past told the pharmacist intern that if you call the doctor and we do not have some specific medication tell him what we do have, or what we can do for him. You must have an answer because he is going to say: "Ok, what now?" Because now it is our problem. Those doctors are usually right here but the other doctors also co-operate. He will tell you: 'No, that's right. Give it. No problem. Just send the prescription so that I can change it for you.'

- **"I focus on you for four minutes even though it is in an environment where my attention can be distracted. It is possible."**

The context or communication between the pharmacist and the *patient* can either be by telephone or a focused conversation.

"You get the files of patients in a postal pharmacy and then you phone the patients for their chronic medicine and you have to hear what they want. If they tell you they want everything, then the red lights go on. Some are impatient, they do not want to get bothered and now you have to phone on their cell phones, and you do not know when to phone. You must hear what they need, when you can send it, and where."

"Then it is not to look up and have a conversation here and a discussion there. I focus on you for four minutes, even though it is in an environment where my attention can be distracted. This is possible if I work with you there. The person in the queue behind you is willing to wait, because he knows that when he gets to you, he will have focused attention for four minutes".

4.5.4.4 Check patient's understanding and ability to follow plan

- **"You must give him an opportunity during the communication process that he understands what you are saying."**

Make sure that the patient understands all the information you have given him/her by asking questions and facilitating an environment where the patient will feel free to ask questions.

"If they repeat it for me, I know that they understand. If they look at me blankly, then I explain again, but if they say "OK" I know it is all right. Then I accept that the information on the label will confirm it, because it is written there. Our contact number is also on the label, so often when I see people feel a little uncertain, I tell them: "Just phone me when you get stuck. Most people, if

you now explain to them how it works, and why they have to use, are very forgetful. With one lady specifically I always talk to the husband how she has to use it, because sometimes she does not even recognize you when you pass her in the street and she is not with it. Sometimes patients are also not completely capable of controlling their own medication and then the information given to the spouse is also necessary. Perhaps just a way that you build into your communication to find out whether he is understanding the question. Perhaps to ask patient: "Please explain to me again how it must be used?" It is necessary to build in a question that will elicit a question to you to explain. You have to give him an opportunity to be able to demonstrate in the communication process that he has understood what you say about adherence. There are many cases that they can misinterpret, and if you do not give them a chance to talk a little and make sure what you are dealing with you will not note if there is a misunderstanding. This can disadvantage the adherence. Make sure that the pharmacist understands the patient, and also that the patient understands the pharmacist. Perhaps ask questions to ensure that the patient is understanding you correctly. Do not let him form his own ideas before you have completed your sentence, because then there might just be miss-communication."

4.5.4.5 Cultural differences

- **"There is a big challenge in South Africa with eleven languages."**

The patient and the pharmacist need to find a common *language* to be able to understand each other during the communication process for the effective exchange of information between them.

"Generally the communication is quite good. The pharmacists can all speak English and are skilled. Our client base is mainly English, because if you accept a job in the Public Sector you have to be able to speak English. When it comes to communication, I think the most important one – or one of the most important – is language. It is a big challenge in South Africa with eleven languages. You sometimes have before you persons from different language groups. Your role there should be that you have to be fluent to understand a language that the patient understands, because if that communication is poor, it can affect adherence seriously. We normally speak English to black patients. I have had the advantage in practice that when you speak to a migratory worker – such as Malawians – they speak reasonably good English, but some do not. Even among our indigenous languages, where people speak poor English, there is the working language called "Fanagalo", which has played a big role in many cases in settings like mine hospitals and even in a satellite pharmacy where you might be in a black area. If you can communicate well in a language that they can understand to some extent, then it just makes the communication better."

"It is an obstacle on the one hand, that one cannot speak all eleven languages. You have to be patient and listen well. You have to be able to speak the right language. Some people cannot understand Afrikaans. Black people, I have noticed, struggle with English and Afrikaans. Fortunately there is someone else who works there, and you can ask such a person to help if you cannot understand. So, this does tend to help. I wish I could speak and understand a black language. Language is just an important aspect for me. We do not have somebody who can speak the other language. Now and then we have a problem with a dependent from one of the rural areas."

- **"It is not about the child who is supposed to develop a runny tummy, but to drive the evil spirits out of the child."**

In any multi-cultural country, the patients with *different faiths and beliefs regarding health and medicine* from different cultures speaking different languages are a challenge for the pharmacist.

"This comes down to communication which is a big problem. The patient tell the sister that he have aching muscles, but he also have another problem that he do not really want to talk about because he have piles. When I explained to a black woman how to use a vaginal cream, I explained and talked, and I did not realize at the time that if they say "yes" it means that they are hearing you, but it does not mean that they understand. The next day she brought the stuff back and said it would not enter her ear. She had tried to put the vaginal cream into her ear and then I realized that one has to be far more careful about how one speaks to the different language groups and whether they actually "hear" what you are saying. That is what I try to teach the students to ask questions. If they come in for painkillers, then you must first ask: "What kind of pain, where, or if he is asking for castor oil, ask: "For whom?" I have had cases where a man came in to get castor oil for a day-old child and that is where the culture comes in. It is not about the child who is supposed to develop a runny tummy, but about the effort to get the evil spirits out of the child. It is also a problem within their culture because of the hierarchy of who the most important person is and who is allowed to say certain things" (Not always the patient but a more important person communicates on their behalf).

4.5.4.6 Patient's level of medication cognition

- **"I had clearly communicated it wrongly, because in fact I had frightened the patient more than I informed him."**

The pharmacist needs to choose his words carefully while informing the patient of the "need to know" negative detail of the medicine so that he does not *scare the patient*.

"A woman once came to fetch Medicine R for her child which is a good medication for treatment of acne. I said to her: "Ma'am, remember, your child has to go for a liver test again in six months' time and he is not allowed to be in the sun and you have buy him some Medicine L for his lips." Once I had given them all that information, she said that she did not want that medicine anymore, because she was now afraid so I had to explain that it was not to say that it would happen, but I had to tell her, because that is the procedure. I had clearly communicated it wrong, because I frightened the patient more than I informed her and she asked me to cancel the transaction. In the end she did take it, but it took some sweet talk to make her take it. There is also a fine line about how one has to handle this in terms of medication adherence, especially when it comes to side-effects."

- **"The patient just wants to know before or after meals."**

Sometimes the patient only wants to know the *basic essential information* like when to take the medicine and not the working of the antibiotic.

"You will then explain to him how an antibiotic works but all the patient wants to know is whether it should be taken before or after meals and its interaction with other medication. The patient wants to know how he should use it and when must he use it and for how long should he use it? Important information to make sure if he is allergic to the medicine or not. If the patients wants more information, there are more information available."

- **"Then the pharmacist has to scold and just try to explain to the patient that the course is not going to work if she does not take it at the same time every day."**

Often the patient is caught up between their own personal circumstances and not understanding the *importance of adherence*.

"Unfortunately the most important cases where it is essential for patients to use the medication every day, involve ARVs for HIV-positive patients. This is unfortunately where there is very little patient adherence, and especially in Country B I came upon this very often. That the patients will use the medication for a month and then stop because of factors outside their control. They live far away from the pharmacy and they do not have enough money for the medication and then they skip for two weeks and then they come for the medication again. The pharmacist has then to scold and try hard to explain to the patient that the course is not going to work if it is not taken daily at the same time. So the pharmacist must keep trying to ensure that the patient understands."

- **“One must adjust to the level of the patient being addressed.”**

Communicate with the patient in *lay person's language* at their own unique level of understanding although you as the pharmacist know the correct scientific terminology.

“This is not a matter of talking over the head of the patient, but to level out on to the same level as the patient. To talk to him at a level that he will understand and to explain in lay person's language and I think this is very important. It should be the most important thing. Pharmacists are trained to speak and to think in medical terms. I can understand why, because they have to be able to enter into discussions with doctors. A pharmacist must have adequate communication skills to be able to sum up his patients and to determine at what level he must communicate with the patient. Should he talk to the patients in lay terms, or can he use somewhat more academic language? It is important for him to be able to determine that the patient is understanding what he is saying and if he does not understand, he must try and explain it at a different level so that the patient can understand him. This is information and then you think the patients are going to understand posted documents they received from Medical Scheme D with terms like hypercholesterolemia? They do not know what it means so one has to adjust to the level or rise to another level with patients. For me the concern is with the level of communication with the patient and a pharmacist must not use a too high level of language. You have to go and see who you are talking to and then explain this to the person at a lower level. If you now tell that patient with diabetes of HBA1C, he does not know what it is. Automatically he is going to think that this youngster pharmacist does seem to know something. He is not only a pill pusher. He does not only stand there and take those things down from the shelf and paste the lick and stick. This is not all he does – he therefore does know a little bit more.

“If you are going to use high-flown language to explain to a patients certain things, he is not going to understand too well. So you have to tell him: “This tablet is going to govern your heart, it will make your heart beat a little more slowly. It will not beat too fast.” but I understand that the pharmacist also has to pass at university with that language. Perhaps you must then afterwards use or learn your own language or whatever for the ordinary patients. It is important that you should be able to explain to anybody what it is all about. Why must he take the tablet and not just leave the pharmacy with difficult words ringing in his ears? You pick it up over the years. The pharmacist intern explains things over their heads and they do not have a clue but their mouths hang open for the pharmacist intern, because he displays Pharmacology in all its glory. He explains for them in detail but the pharmacist will rather say: “Auntie, it is Auntie's “XXXX” that is hurting. “Oh! Is that what it is for?” Then she understands it because of your years of experience of using certain words and saying things. It is well and good to know Pharmacology, and it is very important. At times when you come out of the field and you try to use all that knowledge and you

fly over the head of the patients with all that Pharmacology the patient does not have a clue what you are talking about.”

- **“I gave her too much information at one time, and then the woman became paranoid.”**

The pharmacist may have this *volume of information* for the patient but rather less information well remembered than nothing at all.

“Sometimes it just goes too fast especially in places like Corporate Pharmacy D. It is all a rush and the communication does not come across right. You just give medicine and go and the patient signs and goes, and nothing has been said about using it correctly, whether they should finish the course and so on. We are supposed to sign everybody's prescription, but there simply is not time. The interns, for example, will forget to say that the antibiotics should be kept in the fridge.

“Let us take a case where you have to communicate about the use of a medicine, and you communicate too much about the side-effects and the possible disadvantages or the discomfort that can occur. Then it might influence him that he does not want to take a chance with the medicine. I can think of many medicines where this will be applicable. Too much information can at times have something of a disadvantage when it comes to adherence. I simply gave her too much information at one time, and then the woman became paranoid. That information role is a very selective role. One does not want to withhold information unnecessarily but I think that one has to discuss it very well and this depends from patient to patient. In many instances one has to give just enough information to fulfil that role in terms of adherence. I have found that at times it feels as if you are giving too much communication, or communicate too much or excessively, that your patient loses focus and sometimes does not catch the important points. This is a skill that a pharmacist has to be develop – to do only enough communication, not too much but definitely not too little. This has directly to do with adherence.”

- **“The communication of the pharmacist is all right but we have to find some way of communicating for those less literature or at a lower level of literacy.”**

Some patients have only a very basic level of *literacy* and the pharmacist needs to adjust his communication to give advice.

“Language is limiting because other languages have a lot of loan words from Afrikaans and English. The communication of the pharmacist is in order, but we have to find something to bridge that gap to those patients with a lower literacy rate. I do not how we are going to manage it, because you try to use lay language but I think that many of us manage very little of it. So you don't really know how to communicate with them in the right way. If we come to those skills where one can interpret the label with directions. This the average person can do.”

- **“Because we know the products but they do not really know it.”**

Pharmacists need to be creative in developing better ways to assist patients with a lesser level of *knowledge of medicine*.

“It is also very difficult to explain that this medication may not be used with that, because we know the products but they do not really know it. One should find an easier way to communicate that they do not use this medicine with that medicine.”

4.5.4.7 Skills needed

- **“This comes out of experience, it is a skill that a pharmacist should learn, to communicate the right things at the right time.”**

Communicate to the patient the correct information needed at the correct time.

“If you are working with a patient and you have to convince him to cooperate or to satisfy adherence, then you have to exert some measure of pressure – they call it communication pressure. It is the same as ordinary persuasive skills because if you put too little pressure the patient might not get the message, if you give too much you will confuse him, or perhaps affront him so that he experiences a degree of disharmony. This comes from experience, it is a skill that a pharmacist should learn, to communicate the right things at the right time. One can communicate too much but also too little”.

- **“You can put off a patient by simply saying the wrong word to him.”**

The pharmacist always needs to be aware of what words are used in communication in order to convey the *correct message*.

“It is about your communication with the patient regarding adherence. Will he listen to what you are saying, how are you going to communicate it? You can lose a patient simply by saying a wrong word to him.”

- **“The pharmacist must learn that skill to enable him to read the patient.”**

The skills to determine the *correct level of communication* needed by the patient.

“The pharmacist must learn the skills to be able to read his patient. To know that the patient is now not understanding a word I am saying, because I am pitching too high, or I am pitching too low. The pharmacist must communicate with the patient at the right level.”

- **“It also must not sound as if he is reciting something; it must be a conversation that flows between the pharmacist and the patient.”**

There ought to be *two-way communication* between the patient and the pharmacist for effective transfer of information.

“The role that the pharmacist should play is to talk to the person and to listen. If you do not have time, then you do not do it. Then you make sure that he complies, and he gets his medication every month. He is already here in the pharmacy and he could also use complementary medication. Let us say he is using medication for cholesterol and you can recommend Medicine Q which helps for the muscular cramps. You can show it to him, because seeing something is so much better. You can tell him as much as you like over the phone, but one never knows whether they are really listening, but if you are standing there and say, “Look, here it is, and it is not even expensive, and it will help improve the condition”.

“It must also not sound as if the pharmacist is reciting a poem. It has to be a conversation that is flowing between the pharmacist and the patient. Otherwise you could just as well have put a flier in the patient’s hand and said: “go and read it at home.” Communication involves speaking and listening. The pharmacist much communicate the information and then listen to what the patient is saying. Does the patient have questions? Are there things that he does not understand? Something that might be unclear? It is that two-way discussion of speaking and listening between the pharmacist and the patient. It is also asking questions. It is not just speaking the whole time. This comes back again to asking and listening. It is important for the pharmacist to be available for questions, but also once the patient has left the pharmacy. The pharmacist might explain to the patient how he should use the medication, what side-effects he might expect, or what interaction there might be. If the patient now gets home, and after three or four days he suddenly has a reaction – a rash or he does not feel well, then he has to have the confidence to go back to the pharmacy and to discuss it.”

“If there is only one-way communication, the patient does not always understand what you are saying, and you do not even notice it. He gets the message in his own way and he does not get an opportunity to reflect and to make you understand that he does or does not understand what you are saying. Two-way communication is very important. You can talk as much as you like. I can explain, to the patient, Pharmacology, but if this is not what you understand or what you want to hear at that moment you are not going to hear. To make sure what your patient’s need is, I must also ask questions and it is part of communication skills, to know that you hear what I am saying, I have to test it, and to get to the outcomes.”

- **“So it is not only the language, the physical transfer or words, you must also look at body language.”**

Patients “speak” loudly through their *body language*.

“It is a skill of the pharmacist to be very observant. I think there are many whom you can interpret in a pharmacy in terms of a health problem that can be interpreted through just looking at the patient’s body language. “Because you know if you see somebody who is very pale, you know that he is ill, never mind what language he is speaking. Ask him to sit down and you will try something. So it is not only the language, the physical transfer of words, you also have to look at the body language, and you can see this man is light-headed and looks as if he is going to fall down. So let him sit and take his blood pressure so long while he is trying to get his words together.”

- **“At the end of the day you still need to retain that person as a client. You do not want to chase him away in a fury and never see him again.”**

There will always be some level of *conflict* between the pharmacist and the patient and the management thereof needs a certain set of skills to be learned by the pharmacist.

“The patient comes back after two days with a statement from the Medical Scheme. The people usually arrive in a very angry mood and they are angry because you as pharmacist has stolen his money. You explain it as follows to him: “No, sir, how the state actually works is that they showed you that we tried to claim, but you can see nothing has been paid. So you should really get a statement in about two days which will say that it has been reversed. Do you understand?” This patient arrives in a state of anger and I did not even serve him that day so it requires very good communication skills. At the end of the day you still need to retain that person as a client and you do not want to chase him away in fury and never see him again.”

“They do not send a letter, not for the members belonging to the scheme to say that their prescribed minimum benefit has been adjusted. They only send out letters to the pharmacists and now we have to explain it to our patients. So every second patient who comes in was on Medical Scheme D. Their Medical Scheme D last paid the chronic medication 100% and now they come with a new thing and the patients have to pay. Last year he had not paid anything and the patient is beginning to be very unhappy. You also get people every day when patients come and say that last month their Medical Scheme had paid and now suddenly they have a co-payment. “No, but why now?” But then it is the Medical Scheme that has now decided that they do not want to pay any more or they have adjusted their tariff.”

"We must really have very good communication skills to give through this kind of information, without letting the patient think that you think he is asking a stupid question. Even where there are no Medical Schemes. Where the Medical Scheme does say on the dispensing system "member unknown" people do not handle such things well. Especially if you are working with a reasonably professional client as for him it is a slap in the face. "Why doesn't this Fund work?? Indirectly you are really saying to him that his fund had not gone through this month but he believes that you are telling him that he does not have money."

- **"Empathy is only one factor that is involved in communication skills and can also be used to play a role or have an influence in adherence."**

To show *empathy* with the patients is one of the first communication skills that the pharmacist needs to be competent in.

"If you demonstrate empathy during these communications, then your patient experiences more of a compassionate situation. This can also perhaps motivate him a little when it comes to adherence. Empathy is only one factor which can be used in communication skills and can also be used to play a role or have an influence on adherence".

- **"You must be able to stop the patient without insulting him when the discussion starts to going off the tracks."**

Pharmacists try to keep the *conversation with the patient focussed on the medicine* in the short time available for interaction.

"One of the communication skills that is quite important for me is that the pharmacist must, in a professional way, remain in control of the communication process. Developing that skill only comes with experience. Where for example you had a patient who came in and just kept talking, and the pharmacist does not get the opportunity to get to the important points, he can in the end forget. You get side-tracked, and what is important in the communication skill is that you have to master the technique of remaining in control of the discussion. You have to stop the patient without insulting him when the discussion starts going off the tracks. The typical problem that I have experienced is that you normally work under pressure, especially if it is a busy pharmacy and you do not have time to listen to frivolous stories. If you really want to promote adherence, then you have to get down to the nitty-gritty of what is important for adherence. If you lose control of the communication process, time passes and after a while you simply have to stop the instructions or the consultation."

- **“You cannot simply say to the patient: “Now don’t go and drink together with the medication. The patient will easily think that you regard him as an alcoholic.”**

Try to give *potentially sensitive information* without offending the patient.

“So in time one learns to say: ‘Aunty, just hear me out. I just want to mention it. But I know it is not really a problem with Aunty, but do avoid alcohol. Everything containing alcohol.’ So you don’t talk about alcohol but rather talk about all alcohol-containing products. It is also important how one communicates this. Social drinkers perhaps do not realize that they should not drink alcohol with certain medicines and they will get quite ill if they do it. You cannot simply say to the patient: “Now don’t go and drink with it.” The patient might just think that you regard him as an alcoholic. You have to be careful what you communicate and how you communicate it. There is, however, important information that the pharmacist should not neglect. He has to bring it to the attention of the patient. Come back to communication skills and know your patient.”

- **“If you remember what the patient got the last time, and you mention it, even if it was his child who broke a leg, and you begin the discussion with that, then he feels good and knows that you care.”**

Build a professional relationship by *knowing your patients* when they are not patients.

“I feel that everybody (patient) has to be dealt with in his own way. One day a patient came in and wanted a schedule 3 medication which I did not want to give to him and then we joked about it but the patient had a twinkle in his eye. I said to him that I could not give him the medication as he needed a prescription and the patient then said that it was not his problem but my problem. Immediately the assistant was mad at him because he was like this with me so I said to her afterwards: “You know what, he was only making a joke and he was not really bad to me.” So you have to read the situation as it happens. Some patients you can see them coming and I really do not want to help that guy but you have to. So with one patient you are going to make jokes and for one you are going to help very seriously. These are skills and they come with time. Without ticking points 1, 2 and 3 to 7 within the counselling protocol while I as the pharmacist am talking to you, it is out of the questions that I ask you what your need is, and I do address all those needs. At times it begins with a discussion. If one listens from beginning it might sound like chit-chat and so on outside medication, and if a person has the need to begin to feel comfortable in such a way, it is the way to approach her and to help her feel comfortable. If you remember what the patient got the previous time, and you touch on it, even if it is only about a child who broke a leg, and you begin the discussion with that, then he feels that you care. Then they tend far more easily to open up and really address their needs within what you discuss with them. You can also see when somebody is in a hurry, and do not then chit-chat. Give him his medicine and tell him that you

understand. So if it is not new medication, you can simply just give it to him, because he is really in a hurry and other times you can take a little more trouble.”

- **“Yes, it is very important because now you hear diarrhoea and you immediately think of Medicine I.”**

The best communicator has the best *listening skills*. Do not jump to conclusions before the patient has finished his/her story.

“Yes, it is very important because now you hears diarrhoea and you already think Medicine I but first listen careful to what the symptoms or perhaps the cause are. It can work both ways, because the patient hears one thing and then he comes back and asked: “What was it again that you said I should not do any more, or what should I do?” The pharmacist tends to work so much with those medicines that he does not listen when the patient still has additional questions. You are already so conditioned. Communication is a large part of what you do in counselling but often it is a more a matter of giving information without listening to what the patient has to say about his condition, or what he would like to hear.”

- **“We still do not know how well it is going to work, but the pharmacist must perhaps now fulfil that role, to ensure that the patient uses the medicine correctly.”**

Not many pharmacists are competent in the *management of medication adherence* because the system mainly focusses on the handing over of medicine to the patient in the quickest and most effective way.

“Not any of the pharmacists walk out of there with those skills. Apart now possibly somebody inside who works within the system and who has to do a lot with it. Our system is such that you do not focus on it enough. That is why I am glad that there is a little role rotation towards medication adherence within our profession. We still do not know how it is going to work, but that the pharmacist fulfils that role, to see to it that the patient takes his medication correctly”.

4.5.5 Professionalism

Professionalism is one of the outcomes and an element or affinity of the system named Pharmacists’ perceptions of their role in medication adherence. The respondents considered Professionalism as important in the role of the pharmacist. Several sub-affinities were identified in the axial coding process of the individual interviews and a composite description was prepared by the investigator.

A graphic representation of the Professionalism affinity can be seen in Figure 4.4. The sub-affinities are explained thereafter.

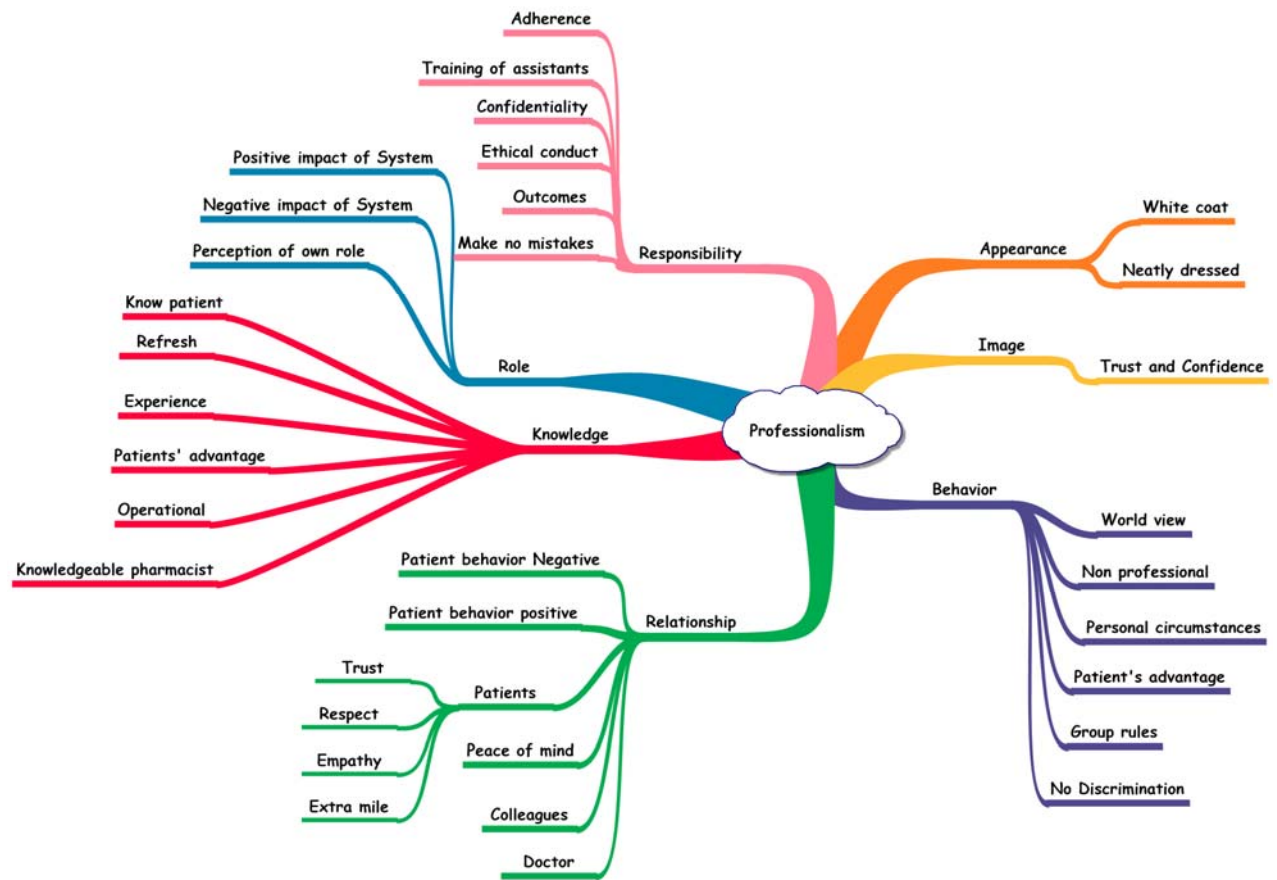


Figure 4.4: A visual representation of the sub-affinities of the affinity Professionalism

4.5.5.1 Appearance

- **“Your appearance and your behaviour. You have to groom yourself. While you are making up the prescription, they stand and watch you all the time.”**

The pharmacist and the staff of the pharmacy should be *dressed neatly*.

“It is definitely more about appearance because appearance is very important. Your appearance and behaviour. You have to groom yourself. While you are making up a prescription they stand and look at you all the time. The front of shop people too. If they look neat and act professionally, use the right form of address and ask the necessary questions and are interested and listen.”

- **“The white coat does create a professional image.”**

The *white coat* is still considered as professional.

"Professional appearance and the clothes that you are wearing, all these play a role. A pharmacist must be professional. At some stage we wore the white coats, but we have now stopped that because it is the trend. We just found that in summer those coats are quite warm. It is not really practical, but that is not really an excuse. The white coat does create an impression of professionalism. But now I have to tell you what a white coat has meant to me. Whether I arrive at a block of flats or an old-age home, six in the evening, and the security guards see the white coat, they let me in. That old sense of security of a white coat. So I do not care what a modern doctor wears. I see nowadays they wear denims and we pharmacists also do it but that is a personal choice. What each professional chooses is whether he wants to wear a white coat or not. The smaller pharmacies who still have uniform and the wold white coats, I just like it. I have now seen that Corporate Pharmacy A also has a white jacket with navy binding, like a short coat. Sometimes I wear that, and when I am wearing it and walking through the shop, people will stop me, especially black people, and say: "doctor, doctor ..." They think you are very clever and you will know how to help them. Just because of the way you look. What they are now looking at for the future, they want to give us pharmacists white jackets of Corporate Pharmacy B with Corporate Pharmacy B logo and name tag. They are moving further from uniform clothing and giving pharmacists white jackets. The patient can go to the young pharmacist with the white coat and if she is blunt and rude with him, it is not going to work. The patient can come to me the friendly old pharmacist with white coat and I will get far more out of that patient than that pharmacist next to me."

4.5.5.2 Behaviour

- **"And a group like this, who are us, you are expected to act professionally."**

Some of the corporate pharmacy groups have rules regarding the professional conduct of the pharmacists and staff.

"The values of the Corporate Pharmacy Group M is quite important for the group and they try to get away from "your wife who just works here". People have to be trained and we wear uniforms and we wear name tags. When a pharmacist that is not part of Corporate Pharmacy Group M is standing alone in a pharmacy perhaps the casual informal clothing can come in. The group pressures us about that as it lets a pharmacist look professional, at least in your contact with the patients. There are procedures in place, if there is something wrong you immediately put the fault on the website such as if somebody issues the wrong tablet. It is a database that picks up those things, and everything is monitored. This is to protect the people and it is not only those who work there. We use the students once they are registered with the Pharmacy Council in their second year. Outside the group that pharmacist) is perhaps not always going to act professionally, and

in a group like this, you are compelled always to act professionally. Many of the pharmacies charge after-hours fees, and we do not do it because this was a group decision and we do not charge after-hours fees."

- **"The only difference between me and another person is life and world-view."**

The world view of the pharmacist fosters professional conduct.

"The matter of life and world-view. If you are a (name of religion) then you are not afraid to show this in your behaviour and if things are under pressure, sometimes it is highly pressurized, then people still have to look calm. The patients must feel that you are in control of things even if you have ten ointments to make up at the same time. It would also lead to a pharmacist not knowingly issuing a product that has passed its sell-by date. We pharmacists also have our hang-ups and problems. The only difference between myself and another person is life and world-view. Be sure that if a student is going to work here with me I will instil that life and world-view in him."

- **"There should not be discrimination as a result of any factors such as profession or financial status or disease condition."**

Discriminatory behaviour against patients is not expected from a professional person such as a pharmacist

"A pharmacist must realize that he is in a professional job, and he should treat all people equally, never mind whether they are rich or poor and whether the person is a doctor or a street cleaner. It remains his patient and he is there to see to their health through the provision of medication and advice. This is sort of a mind-set of the pharmacist. There should not be discrimination as a result of any factors such as profession or financial status or disease condition."

- **"If they should see you get drunk and make a fool of yourself then they are going to think less of you."**

Non-professional conduct in and outside the pharmacy is totally unacceptable for a pharmacist.

"The place where you hang out is a pharmacy. If they are going to see you in a sleazy bar, they will not take you seriously because they are going to wonder where your judgement is if you hang around in such places. Whether they hang out there, is irrelevant, that is their perception of you. One can do everything such as keeping book of everything and explaining everything to patients and being professional in everything, follow up everything, but who you are outside the pharmacy almost has a bigger role. They (patients) see you for the person that you are, because even though you maintain the strongest possible professional attitude, if you don't do it outside the pharmacy, they will lose all respect for you. You cannot be like that only at work, because people

see you outside in the town as well. It must be part of you and your way of life. If they see you getting drunk and making a fool of yourself, then they are going to think less of you. Then they are going to think: "What does she give me every day? Am I certain that I am getting the right medication?"

"You sort of have to split your life, here in the pharmacy you have to be professional, outside you can chat to the patients and socialize. Some people also come to the pharmacy for a bit of socializing and you have to maintain a fine line there. You cannot stand and chat for hours with somebody that is a friend and the queue gets longer and longer. If somebody comes to you because they really already see you as a friend and wants advice, then you have to combine the two."

"Professionally it is important and there are rules and regulations from the South African Pharmacy Council. You hand out the prescription, you give the necessary advice and the patient must sign and see what he is signing for and what the amount is. Everything has to be open and this is then professional. Now don't go and do things that you are not allowed to do. Do not sell Schedule 5 stuff over the counter without prescription because the person is going to be very pleased for five minutes, because he is saving on a consultation with a doctor, but he will not have any respect for you. Professionalism and respect go hand in hand. Another non-professional pharmacist will do anything to keep the client there. He will dish out thirty sleeping pills every second day and you could get quite a number of extra clients if you dish out medication left right and centre, and never ask for prescriptions. But then they lose their respect and the professionalism flies out of the window. You must simply do the right thing. You have to remain inside the law and you would also like to help the patient. There are people who take chances, and who obtain different prescriptions for Medicine Z, Medicine X and we do not always know it. If they then come in you will see that the repetition is right and then they come every 30 days to get Medicine Z, but they are also with three other pharmacies and three other doctors. So every third day they get Medicine Z somewhere."

"The patients say that the other pharmacist was rude and unprofessional and unfriendly. This is very important for many clients. Some will say that it is so convenient there at the doctor because they will just quickly get their medication and then they have an account. At other places like Corporate Pharmacy D they do not have an account and this is also very important for people, but if the pharmacist is not friendly the patients complain a lot. It is all about how you approach the patient, what you discuss with him. Your personality also conveys your professionalism."

- **“I am a professional person and I sit up to 13 hours a day to render a service to my patients.”**

The pharmacist will always strive to behave to the patient's advantage.

“The patients want you to help them. Often when I think they should rather go to the doctor. Sometimes their courage will desert them, because they thought that they would be helped by Corporate Pharmacy C and then they now have to go to a doctor. I can just see they are not in the mood for that. Other times – but this is less often – I can see that they appreciate what you are saying when you advise them to go to the doctor. It is better to go to a doctor first but most of the time they expect that we should help them. Sometimes it is quite important to involve a doctor because the doctor has sometimes already in the middle of a course changed a patient's antibiotic because the patient quite simply did not respond well to it.”

“I as a professional person sometimes sit for 13 hours a day to render a service to my patients. Many after-hours calls from patients and you ask yourself if it is my own patient. If not, then what? Must you act professionally because it is a patient and must you fix up the mess of another pharmacist in town? Where do you draw the line and do you tell him to call his own pharmacist? Do you help the patient and win him over because you do not make a cent of it.”

- **“But when I have to function under high-pressure situation and when I don't get to eat, then my blood pressure rises and falls.”**

Possible negative *personal circumstances* may not influence the professionalism of the pharmacist.

“I typically have perfect blood pressure, but when I am functioning under pressurized circumstances and when I do not eat, then my blood pressure rises and falls. Then one is also not positive about the patient because the patient is messing around with me and does not give me a chance to rest. Then one also makes a lot of mistakes and this obviously also influences the patient's adherence because he becomes negative if there is a mistake with his medication. The patient then thinks why he should in any case drink this stuff, because she gives him the wrong stuff, and he could just as well have left it. If I do not feel well, and my head is not quite with me, then I tell them, give me just a moment, I have not eaten. I am going to take it a bit more slowly with your prescription because I want to make sure that I am getting it right.”

4.5.5.3 Image

- **“This is about the image that is created by a pharmacist.”**

An image of *trust and confidence* should always be portrayed by the pharmacist.

"It is all about the image that is created by the pharmacist, so it is not really so that you and the pharmacist has to be best friends before you trust him to give you medication. The image that is created is just as important and if the pharmacist in general has a positive image you will find it easier to trust the pharmacist. That is also where it comes in about professionalism and the image that you project. The patient can walk into a pharmacy and basically see whether he is going to trust the pharmacist to give him advice and his medication. It is very much about the image that is projected because some people only see the pharmacists as the guys who must see to it that there is stock on the shelves."

4.5.5.4 Knowledge

- **"There is a component of knowledge and confidence".**

A knowledgeable pharmacist is trusted.

"To improve our patient adherence is of cardinal importance because the moment a patient comes to me with a question and you can answer with confidence and solve his problem, that patient will eat out your hand. Professional training is very important and then you have to be willing to find a solution always for the patient's problem. Whether it is the red spot on his hand or whatever. The patient then says: "I can use this medicine because the pharmacist told me how it works." You often get people who, when they get to the front of the queue, will say, no, it is all right and they will rather wait for the other pharmacist because they have trust and confidence in his advice and opinion and because they respect the image that he projects. I have also noticed that if you once say to a difficult person: "Listen, I am not sure. I am just going to find out" you have to do it very tactfully. That person can visibly think that this pharmacist does not know the answer to my question and she must first go and find out. The patient do not regards you as trustworthy if you do not really have a clue about what goes behind the computer. Once a woman said to me: "Sorry, can you just call the pharmacist to come and help you out here". There is a component of knowledge and confidence because even if you find out and you want to, you do not always have the self-confidence to discuss certain things, and you are not 100% certain of dosage intervals or interactions with other medication or front of shop vitamin supplements. Then you rather keep quiet. A pharmacist would rather keep quiet than give the wrong information."

"I do not know whether us as pharmacists should feel flattered but there are many doctors who call us and then ask: "What do you think here, and what do you think there?" It is quite nice, but then you cannot know nothing, you have to keep abreast of things. Can you just think that if there is a patient sitting in front of the doctor, and he says that he just wants to call the pharmacist C or M or K quickly? That should then tell the patient: "Perhaps I am with the right pharmacy."

- **“You do not see this with a beginner pharmacist; it comes with years of skill and work.”**

Professional conduct develops from years of experience.

“Professionalism has to do with your ability as a pharmacist to sum up the entire situation when you are working with the patient. To be able to recognize and respond to possible grey areas or to some or other aspect that can influence adherence. To attain that level of professionalism and to maintain it many pharmacists develop it over time and it just become possibly becomes better with time. This has to do with insight around this person and prescription and the way you handled it. It might be that this sort of prescription or medicine can contribute something to the total picture of outcome and adherence. Or something about the patient and his way of doing things or tendency to forget and how important he considers the treatment to be. This might differ from pharmacist to pharmacist. How good are you as a pharmacist when it comes to seeing the bigger picture in the whole situation? If you are working with a patient you cannot really divide everything into neat little cubicles. If you look at it holistically, then all those components are part of your discussion. If you are experienced after a few years, then the division between the different components become less and less clear. When I greet you I am already doing observation, I am listening to you, I am looking at your prescription, I am looking at you, and I am already doing a lot of the stuff (protocol) without having to tick it off. If a patient has known you as a pharmacist over time, and you have exceeded his expectations in terms of information he needs he will come back because he believes in you because you really give him the information that he needs to become better. It is not all patients who want the same amount of information, so you know your patient and you give him what is needed and you listen to him and give him the extra. This you do not see with a pharmacist who has only just begun. It comes after years and skill and work. There are pharmacists with different personalities who can do the same or arrive at the same package of quality pharmacist. So it is a composite of certain skills within your personality and with time you get to know how to apply this to the advantage of the patient. Within the patient's need for information. It comes with time if you as a pharmacist are attuned to people to know what is really going to work for you.”

“What I find encouraging nowadays is that the modern tablets coming on to the market are more patient compliant than in the old days when you had to take a tablet very four hours. You now get pills that you only have to take once day. I have seen that with a man and a child this is the ideal dosage. What now happens is that some doctors are there to make it cheaper for the patient, so that he only gives 15 of the 300mg because the 300mg is just a little more expensive than the 150mg. The patient now has to break it in half. Now I know my pharmaceuticals. The whole effect and action of the once per day dosage is down the drain.”

- **“If you go back to the same pharmacy, and that pharmacist knows that you always come to him, then he knows what medication you are on and he does not need to take the patient history every time.”**

The pharmacist needs to *know his patients* personally as far as possible.

“Knowledge of your patient. If you have a regular client or patient, then the pharmacist will more easily and quickly get to the point where he knows how to talk to the patient. It is perhaps that trust relationship. You have known the person for a while, and he is a regular client and then it is easier for all those parties to communicate. This also has to do with the interaction of one medicine with another. If you go back to the same pharmacy and that pharmacist knows that you always come to him, then he will know what medication you are one and he will not need to take a patient history every time or ask questions such as: “Are there perhaps interactions with the medication that I am going to give you now?”. This all makes the process that much easier.”

- **“You can play a big professional role to unlock knowledge that is not known to the client by communicating it or to explain and to manage that knowledge.”**

The knowledge of the pharmacist is used to the *advantage of the patient*.

“You can play a big professional role in order to unlock knowledge that is not known to the client through communication, or to explain it and to manage that knowledge. I realized that the pharmacists who had always worked clinically or whose clinical side was more their passion, did better in terms of information and the whole image. Management of the patient to obtain better outcomes and adherence to the prescribed regime. To just function rapidly in order to get a patient through the system has led to pharmacists not applying Pharmacology. If they did not have a tutor who did it and from whom they heard how they had to apply it, then they have to go and read up on it again if they do want to give the information. Which takes time in such a busy pharmacy and you do not have time to go and read up. Then you have to do it after hours to help a patient, and if you are not passionate about your work you just let it go. You can use your professionalism to influence adherence directly by for example assessing the patient(s) and you then have choices as to what to do. This is part of your professional knowledge, that if for example, you look at the dosage intervals and if you can lessen the intervals the chances of not deviating from adherence are better or worse. Take for example your long-working antihistamines. A patient will more easily adhere – especially a busy person – if he has to use a long-working antihistamine instead of a short-working one where instead of four times a day or three times a day he can use one. This ties in with that professional role that the pharmacist develops in order to achieve outcomes.”

- **“As soon as you have a passion you will try all the time to keep your knowledge up to date.”**

New, recent and updated knowledge is the everlasting quest of a professional such as a pharmacist.

"As soon as you have a passion you will try all the time to keep your knowledge up to date. You will read articles and register with websites and if you were stuck about something during the day, you might go and read about it in the evening and get more knowledge about it. Then as soon as you get to do with something like that again, you will know what you are talking about. If you have knowledge you are professional and the patient will think you are professional because you know what you are talking about. If you do not tell the patients about medicine information, they will find out that the neighbour's pharmacist had told her about the medicine. You must know first so one then finds the Scientific American articles on the internet. Read a little in the Pharmaceutical Journal and read a little about everything so that you can simply be aware. If there is time I will, for example, read an article in one of these pharmacy journals South African Pharmaceutical Journal or something, just to wrap my mind around something. But there is very little time for that. If you have forgotten something you have to look it up – one can pick up a book and look it up again because it is impossible to remember everything. It is also nice for the patient to see that this one is really looking at the book as well. She is just making doubly sure and then they have the trust that you will give them the correct product information. Then you might be able to propose something: "Do you know, Mr so and so, I see that you are still on this same product, but there is now something new on the market, with fewer side-effects. Do you want me to speak to your doctor, or do you want to talk to him?"

"This conference that we had been to just about three months ago, they told us about all sorts of things. Then I give the patients this information and immediately they can see that this is something recent, this is something that the pharmacist has heard about recently, so it has to have merit. If it is only something that the pharmacist read about in textbooks, the patients do not attach any value to it because you then do not have any experience about it, you have no recent knowledge about it. You, the pharmacist, has the necessary training to give that training as we did in the contraception courses. We have the background knowledge to motivate the client and to inform them about how to use the contraceptives correctly, and what the dangers are that are associated with intra-uterine devices and all that type of thing. If I had not done that course, and obtained that information, I would not have had a leg to stand on, because I would not know what I am talking about."

"This also explains the role of the representative. One is not always in the mood to listen to the representatives, because you do not have the time, but make that time and this is knowledge in a nutshell because how long is it going to take you to find all that stuff, and they quickly tell you the most important things and they stick in your head. It is very important and it is now absolutely

essential that one should attend these information sessions of the pharmaceutical companies. You have to remain abreast of the new products and your pharmaceutical knowledge has to improve all the time.”

“I must say that I feel that I have been left behind completely. This is perhaps why I am so tense. My colleague is very much on the ball and he is very interested. This is my attitude and at some point I decided that was not interested any more, I did not want to do it anymore. The information is very important as it is a good thing for a pharmacist to just keep on learning some new things, to stay abreast of things. This is very important, that you should know what it is about and be able to communicate it. The big problem is that most pharmacists get sort of caught up sometimes. I can see this especially with some of the older ones. They are not interested in really learning new things. So they just want to come and do their work and do prescriptions and dish out medicine and earn his salary at the end of the month. There are some of them who still really feel that still have a passion for the thing. He wants to give all he has for the profession. If you go on training those guys on a regular basis and know that they are attending the course. If you are a pharmacist with knowledge and you talk and open your mouth and you talk sense, then the patient will have confidence in you and you will appear professional. The South African Pharmacy Council want to enforce this CPD things (Continuous Professional Development), but they keep on postponing the dates. I could now attend these clinical pharmacy meetings that they do at the University, and this is unbelievable. It is very nice. You refresh your knowledge again and this makes a big difference. If you have enough knowledge, this makes your role as pharmacist and your work easier. I would encourage anyone to go and do the primary health care course. Black people with rashes. You know it is an allergy or eczema. Or chicken pox. They want you to help them so you really have to know, because most of the time they come to your first. They do not easily go to the doctor first.”

- **“Suddenly other things are important, such as medical funds and their codes, and all those things and chronic medication – how to arrange that.”**

Operational and non-pharmaceutical knowledge of the pharmacy is as important as the pharmaceutical knowledge of the pharmacist.

“This is something that bothers me. We have studied hard, but we do not have enough knowledge. I have thought that I would like to study my Pharmacology and stuff again. But you do not really use, that which you learn, you don’t use it in the Pharmacy, it is two different worlds. If you get into a pharmacy you suddenly feel as if you know nothing. Suddenly other things are important, such as medical funds, and their codes, and all those things and chronic stuff and how to arrange it. Sometimes you get a question, but in reality we need knowledge, knowledge like what the doctors have, to help people. Because they expect it of you.”

4.5.5.5 Relationship

- **“I do not have the doctor’s cell phone number and his practice is closed already, then I just phone my colleague.”**

The pharmacist feels free to *request assistance form his colleagues* on behalf of the patient.

“It happens every time to me at Corporate Pharmacy B and at the hospital where I am the only pharmacist. It will sometimes happen that I get a prescription that I really cannot read, and then I phone the doctor and it is seven at night. I do not have the doctor’s cell phone number and his practice is closed for the night, then I simply call Colleague J. I still call him, the pharmacist at Corporate Pharmacy A. One of my friends came in with tick fever, really serious tick fever and he is a farmer. He said that it was a case either of me helping him, or he was going back to the farm, so he could not go anywhere. I had to treat him and I phoned Colleague J and then I could gave him double strength Medicine A and Medicine B.”

- **“What works well for me in practical terms is to know the doctors personally.”**

Professional relationships with *doctors* are important for the pharmacist as they are a team with the wellbeing of the patient as the focus.

“The doctor dispensed himself. In other words I am a pharmacist and I am negative about that.”

“What works well for me personally is that one knows the doctors personally, one plays golf once or twice a month with the medics. We are a few pharmacists and the rest are doctors and one gets to know them at the personal level, and then a doctor is far more amenable and the doctor feel less intimidated if a pharmacist phones and makes a suggestion. Because this is after all somebody whom you know and the guy’s motive is not to try and push you or try to prove a doctor wrong, but it is in the interests of the patient to make a proposal and the doctor is open to suggestions. This is also applicable more in a smaller town setting, where people know each other. I think it is the same in any professional field where I play golf with a doctor and we go out together and I see this man’s way of life is not to my liking, then I am not necessarily going to trust him to make the right diagnosis for me. This is simply how people are but the two are not directly related. One can still give the correct diagnosis and be a good doctor or pharmacist, but one trusts another as a person and as a whole. So somebody who is always the same as a person, not only applicable to a pharmacist, but in general, and that is where that relationship comes in. If you know that you can really trust somebody, then you will trust him to give you the right information and the right medication.”

"The advantage is here, I can pick up the phone and I can call him (doctor) in his consulting room. I can talk to him, he is not going to be mad at me, because it is all within the same group. I can call him at any time and no other pharmacist in town can do that. I have the advantage to call my doctor, go and have a beer with him and tap into his knowledge: "Doctor, I have this patient and the insulin is like this and like that, and I am not sure what we should do here. Can I send him to you, or do you think we should do this or that?" "Pharmacist J, let us add this Medicine S, but give it for a month, but then he must come back to me". That is the type of relationship that we have."

"He is now a fourth-year medical student and he worked with us in December. This was very nice for me. If I now really get to a point where I have doubts about a diagnosis or what to give, then I would go to Medical Student J and just like that I get the information, and he knows exactly. The medical students definitely have more knowledge and training. Actually it feels to me sometimes that pharmacists could rather have gone and studied medicine just so as to have more of that knowledge so as to be able to help patients."

- **"We want to be treated as professionals, and people do not get that message."**

Negative behaviour of a patient towards the professionalism of the pharmacist may negatively influence the relationship between them.

"You get people who confront you: "Listen here, you studied at the academy of a public entity. You are not professional pharmacists." And then you say that is not true. There is also the way in which people address you. We want to be treated professionally and people do not get that message. It is "Lovey" or "Honey". Older people tend to use the words but you also get it at an unacceptable level. Within the Public entity the pharmacists are still quite professional and want to be treated as such."

- **"For me it is about the relationships with clients, because then the client has more confidence to ask questions of the pharmacist."**

The positive relationship between a pharmacist and a patient is beneficial for the patient.

"This comes down to the relationship again. If the patient go to a completely strange pharmacist, you might not have the confidence to call him afterwards. If it is a regular client, and the pharmacist and the client already know each other a little, then it is easier for the client to pick up the phone and say: "I now have this problem. Should I carry on with the medication, or should I stop? What should I do? I like a community pharmacy where one can build a relationship, for me it is all about the relationship with clients because then the client has more confidence to ask questions of the pharmacist. He knows it is the role of the pharmacist and that is what he has

been trained to do, and is the best person to be able to answer the questions. This is where the pharmacist finds his work most fulfilling.”

“Most of our chronic patients or the biggest consumers, are from old-age homes and in this or that frail care unit. Then the sister normally phones to see that they are using their medication, and this really helps us. If you are now a permanent resident living on your own, then our pharmacist will look a little and if you see that they have not come to fetch medication for two months then you have to ask and stress the importance, and say that ostrich techniques will not make the illness go away, so you must treat it and come in. Perhaps it is a good time to take cholesterol quickly, because you have not taken medication for two months and the blood pressure too. Then we can see what the difference is in the values of the cholesterol test and blood pressure measurement and you can see black on white that the cholesterol is suddenly up from 5 to 7. “That medication really does work, you might not have felt it working, but you can trust the reading and your blood pressure is now 150 where it should be 120 because you are not using the medication. These are the implications: you might suffer vascular damage, eye damage, kidney damage. Do you want, when you are old, to have difficulties, or are you going to swallow the tablet? Three seconds and it is done?”

- **“I actually only wanted to talk to you.”**

A pharmacist acting professionally gives a patient peace of mind by acting as a confidant.

“You can come to me with any problem and you can know that I will give you the best advice ever. You get clients who want the best price as well, or you get some who say that they do not worry about the price, they are just looking for the best quality product. Or others who will say that they do not worry about the product, they actually only want to talk to you: “I really just want to tell you about my sister’s brother who now has this disease.” So in the end there is no transaction but the patient has that peace of mind to say that this pharmacist is professional. He will listen to me and give advice in a way that a client wants to be treated. There are patients who always return and say: “Do you know this is why I buy here, because I always get a friendly ear and professionalism” and then it is important for you as pharmacist, because in the end that it what it is all about.”

- **“If somebody comes across as a bit blunt, you must have empathy.”**

The pharmacist needs to show and acknowledge empathy in the interaction with every patient.

“Now there is a man in front of you and he has been diagnosed with prostate cancer. He does not feel good about it so the pharmacist has to have empathy with that patient because of the situation in which he finds himself. He used to be healthy and now suddenly it is said that he has prostate cancer and it is something that has to be dealt with. It is a sentence. Nowadays they are

very good with the treatment of this disease but it is a disease known to be incurable. So you must understand that the man standing in front of you is a little unhappy and he is not all smiles. Then you have to understand that is what it is all about if he therefore should appear a little short with you or rude you must have empathy. Try to understand from your side."

- **"If I say way of life, then I think you must have a passion for the thing."**

Pharmacists will walk the extra *mile* for the patient whenever possible.

"I have even gone to people's homes in the evening to go and give them injections and things. So it has to be a way of life. If I say way of life, I mean that you must have a passion for the thing."

"The patient does not want the expensive product any longer and he now wants a generic one because this is not going through his fund anymore. So with all this he has sort of taken up your time as pharmacist where an assistant could have given him the same service and where you could have been helping somebody else. It comes to: "Keep your cool". Reverse the whole transaction and then he comes back after two days and tells you that the claim has gone through. You then have to explain to him that it is only the fund notifying him that a claim has been lodged and it has not been paid. So then you also have to explain that. People who ask advice and then sometimes it is quite difficult to remain calm about the kind of questions about things that I regard as everyday issues. We as pharmacists are in the privileged position where we reasonably could be seen as knowing what goes on."

"I also had a patient, a woman – not a client of ours – whose husband had died and after three months she had not yet received her new medical fund card. In my teatime I used my cell phone to send e-mails to the medical fund to find out about her papers. The medical fund only needed one more paper to be signed and then her medical fund would be fixed. So I said to her: "Aunty, you are not going anywhere, you are not driving out of Town N because you are not on a medical fund at the moment". After four months she was finally on the fund, and she brought us a whole platter of snacks to the pharmacy – that's what it meant to her. She was in tears when I told her that she was on the fund. She had come to us because she did not know how to sort out her medical fund."

- **"It is that image that he creates and that respect that patients have for him, and he has been there for years."**

Patients still have respect for the pharmacist.

"The pharmacist is the boss. I think there that in Town N the pharmacist is more important than the minister. If the pharmacist in control is on leave, and people come in and he is not standing

in the dispensary, they ask: "Where is the pharmacist?" If the staff say that he is on leave, patients will ask when is he coming back and if it is the next week, they will be back again the following week. That is the image that has been created and that is the measure of respect that patients have for him. He is the pharmacist, and he has been there for years."

- **"Because this is the amount of confidence that they have for you and the role that you play in the community."**

The patient prefers to wait to be helped by the pharmacist whom he *trusts* with his health.

"The best thing that the patient can do is to trust the pharmacist to convey that knowledge to him or her. If the patient has confidence in the pharmacist to be able to do it well. You know what you are doing, and that you will really give the patient the best medicine that he can afford, or can take or wants. One sees this with old people. They do not have an idea what it is so they have almost no other choice than to place trust in the pharmacist. People who go to the city might be going there simply because of the price of the medication but come to our Town N and ask "I bought this, how do I use this stuff?" "My sister gave it to me but what do you think about it? You can in reality tell that lady anything on that day. She will believe you. Because this is the amount of trust that they have for your opinion and the role that you play in the community. That absolute trust that the patient has in you as pharmacist, whether it be your attitude or your professionalism or the information that you gave him, or the motivation and the road that you are walking with him. If he distrusted you or doubted for a moment how capable you were of helping him and then I immediately fail the test."

"It is not in a first meeting, it is about, over time, to build and later on the person simply tends to have trust in what you are saying. The other pharmacist might simply be giving good service in terms of the right medication and information as well. But there is a little something extra that you build up with a patient over time. Especially if he has good results as well. Then you know and he feels good and more willing and able to comply. If the pharmacist has a professional attitude and the patient knows that he can trust him more, the patient will ask more often and trust him to share information with him about the medication and the reason why he has to take it and this will contribute to adherence. You can still come across as friendly and easy-going and human without being too familiar, and still retain your professionalism. Because I know you well, and give to you as the patient the best, but it is still professional within the context of the trust between us and the best information that I can give you in the context of me being a pharmacist. We really cannot complain about our patients, they understand absolutely because they are conversant with media reports. Fortunately very often it appears in the media, and when we make a different plan such as calling the doctor or we give them an alternative. I think a patient just always wants to feel that you must make a plan, he does not want to be turned away and you saying sorry we do not have

and you can go and look for yourself. You must always be able to give an alternative. It is quite important and then you win their confidence because then they know that you do not lie and this is really true."

"There is definitely room for improvement. I don't know whether it is because the pharmacist is more accessible than a doctor, because it should really be a good thing, but I think definitely that the doctor is still being trusted more. I do not know whether it is because doctors are less accessible and one has to pay to see him, and the idea is still that the doctor is in the front line and once the doctor has now had his say, and if you simply suddenly want to know something or the other, well I really think that there is room for improvement."

4.5.5.6 Responsibility

- **"You make sure that he complies so he fills his prescription every month."**

The pharmacist is responsible for the *medication adherence* of the patient.

"As far as filling a prescription every month, there are outcomes against which you as pharmacist are measured, so you have to call a patient to hear whether he would like his or her next repeat. You have to make sure that he complies, therefore he fills his prescription every month."

- **"Information of patients will remain confidential."**

All the information of each patient needs to be handled with the utmost *confidentiality* and respect under the supervision of the pharmacist.

"What you are like, and how you live is not something that I will immediately tell to the rest of the pharmacy personnel and people outside. That is a no-no. The information that I share with my pharmacists inside the team is stuff that might be to the advantage of your situation and your management. Confidentiality is part of what you sign up for when you sign your contract. Patients' information will remain confidential. If your patient also sign a letter about the information, then it is a part of the outcome that your results may be discussed with the rest of the health team where it is to the advantage of the management of your condition. So certain information about you I (pharmacist) should share in order to obtain the best outcomes. But it is not about when you might be emotional at a specific moment and might be going through a crisis that I (pharmacist) might help you with or advise you."

- **"You, the pharmacist, must exert control over your schedule two medication."**

Ethical conduct is expected of every pharmacist regardless of the context.

"There was a matric girl who dispensed for the doctor. These are things that are not right. But we as pharmacists are checked. One day, a very tall guy walked into my pharmacy and he asked for bottle of Medicine P. I helped him, walked to the till and gave it to him (without entering his personal information in the Schedule 2 register). He came back and said he was from the South African Narcotics Bureau and I had just illegally sold him a bottle of Medicine P. He simply sat down there and then wrote out a fine. I said to him: "Did somebody send you to me?" He said no, and asked whether I had somebody to report. I said no, but I just feel that if you come to me you must go to the doctor as well. You as the pharmacist must exert control over your schedule two medication."

- **"You have to accept responsibility for every mistake that occurs."**

The pharmacist will be held responsible for all *mistakes* when acting as the responsible pharmacist in the pharmacy.

"I have had too much nonsense in my life. You are the responsible pharmacist. You have to accept responsibility for each error that occurs. You have to deal with difficult people. Other pharmacists making mistakes does not bother them too much but I am very bothered by that. You are going to make a mistake again and any person can make a mistake. I have never worked with anyone who has not made a mistake yet. You have to be able to relax and have some restfulness, just to do that prescription properly. Especially when the children begin to cry as well and you see the mothers and you just speed up. Very often then I have to rectify it again."

- **"There are ways in which the pharmacist must accept responsibility to achieve outcomes and it is a professional role that comes into play."**

The pharmacist is responsible for the *outcomes* of the patient's medicine treatment.

"If you work on it professionally to take responsibility for the achievement of outcomes that can be demonstrated or do something to promote adherence. You can decide when the patient, just after you have done an intervention, that there is a clear outcome to follow up or make contact. There are ways in which the pharmacist can demonstrate responsibility to achieve outcomes and this is a good professional role that comes into play."

- **"The more people are trained, the better it will go."**

When pharmacists assist in the *training of more assistants*, it benefits patients.

"When I was also in the state, we trained many assistants to go out to the clinic. They were then post-basic qualified assistants who then go out to the clinic. They of course do not have the same

level of knowledge of the pharmacist, but they do know more of medication and its importance and how to use and then convey it to patients. The more people are trained the better it will go."

4.5.5.7 Role of Pharmacist

- **"It is very important that the pharmacist should understand his own role."**

The individual pharmacist needs to *understand his personal role* as a pharmacist.

"It is a very important point that the pharmacist should understand his own role. This easily gets forgotten in a business setup that the pharmacist is there to dispense a certain number of items per day. You really try to get the patient in and out as quickly as possible because you have a target to reach of a certain number of prescriptions per day. It is high and you have to work hard to make the targets. If the pharmacist understood his role better it would systematically change, it is not an overnight process, but the better the pharmacist understands his own role, the more the pharmacist can stand in that role. The most important is my professionalism. A pharmacist must always be professional. If there are now three types of Medicine H on one prescription, and the person is coughing his lungs out, and this is what the doctor prescribed, do I hand it over? The pharmacist's role in the end is to evaluate prescriptions and to see that everything is correct and to contact the doctor if something does not seem right. It is important for the pharmacist to accept that role."

"I as pharmacy manager also tells my people that I do not have a militaristic management style. I am not going to rage and swear and shout and they are in a professional profession. They must have responsibility and they have to know what is expected of them. Professionalism for me is very important. It sounds like a difficult thing to develop a lifestyle to reveal a positive image. This is not something that one strives for, one must realize that one is already a pharmacist. You don't now need to go and try to be something that you are not, because one is the pharmacist after all, so that you must exude that image and people will have the confidence to come and ask questions. This is something that you already are. This is more within our control. The image that the pharmacist exudes determines the practice of pharmacies. So if you as the pharmacist exudes the image that we, both doctor and pharmacist, are at the same level but each with a different scope of practice, then the pharmacist can fulfil his own role more effectively."

- **"The system does not allow it. You know that you cannot really use initiative."**

The system in which the pharmacist is working may have a *negative impact* on his/her perception of his/her role as a pharmacist.

"You make a move and then you think that it is where you are going to retired. It is all very cosy. Good salary and good package. Good hours and at the end of the day one does not feel good. You do not feel good about yourself. The system does not allow it. You know that cannot really use initiative. You cannot really do what you have been trained for. The system does not allow it. I feel that I am stagnating completely nowadays because your day to day tasks are to survive and to ensure that there is stock on the shelves. This is really a vicious circle because in retail pharmacies the patient often came to you first. You are the first port of call. Then you will give the patient something or say: "I feel that it is now out of my control and now you have to make a different plan. Go and see the doctor." Here in the public sector you actually see the patient last. We render a service. You have standards that you have to comply with but it is not your bread and butter. As a result of that there are some people who try to keep the system going and then there are guys who simply do not worry. We always say that the civil service is the core and the reliable ones. There are people (health care workers) who are still trying to keep the thing going and the load on them is very tough. It is one out of ten who worries but the others do not worry and this is bad. This is what is very bad. I do not get paid for it but you still feel that you have that obligation. Everything runs smoothly and all is well and you are in control. But you are really never in control. You are REALLY never in control – never in control. If nobody gives you a little freedom to do your own things and it will influence your relationship with your patient because this does have an impact on my professionalism."

- **"There is something extra around attitude and positivity, energy and how you do things."**

The system in which the pharmacist is working may have a *positive impact* on his/her perception of his/her role as a pharmacist.

"This is the advantage of a large pharmacy. You have pharmacists with different personalities and you have patients who get on better with a certain pharmacist and who would not mind waiting in a queue for that person, and it is not necessarily the strong clinical pharmacist. Some patients do not have that preference, and not everybody wants special attention. Some patients just want to be helped quickly and they might know somebody and their personalities attract each other and this is what is good for them. I would rather go to where I can see the same pharmacist every time, rather than just go to get my medicine. The need of everybody is not to have a 1 to 1 discussion as it varies from person to person. If I simply need a repeat of a prescription and I am happy with how the medicine is working then I can go where I will be helped as quickly as possible without any questions. The older patients or those who have difficulties go to a person who has time. As a pharmacist I can also show very often that I do not have time for you as a patient. If I am in a hurry, I might come across as impatient. I have limited time, but I might perhaps have

only four minutes and if I manage those four minutes that I can handle all these things – and it comes with practice - then I will make time for you. So for four minutes I will focus on you.”

“In practice there are possibly pharmacists who can function like a training pharmacy. In our area we have such pharmacies to which you can send people so that they can get in-service training which stress good practice and to do things. Back in the work environment they will also do this in the structure of how things should be done. There is just something extra about attitude and positivity, energy about how you do things. If I give you a Standard Operational Procedure and I give to an intern your implementation of it might be different from how the other person does it.”

4.5.6 Information Role

The Information Role of the pharmacist is one of the outcomes of the perceptual system. The Information Role as an affinity comprises four sub-affinities according to the composite axial coding of the interviews of the pharmacists.

A graphic representation of the Information Role affinity can be seen in Figure 4.5. The sub-affinities are explained thereafter.

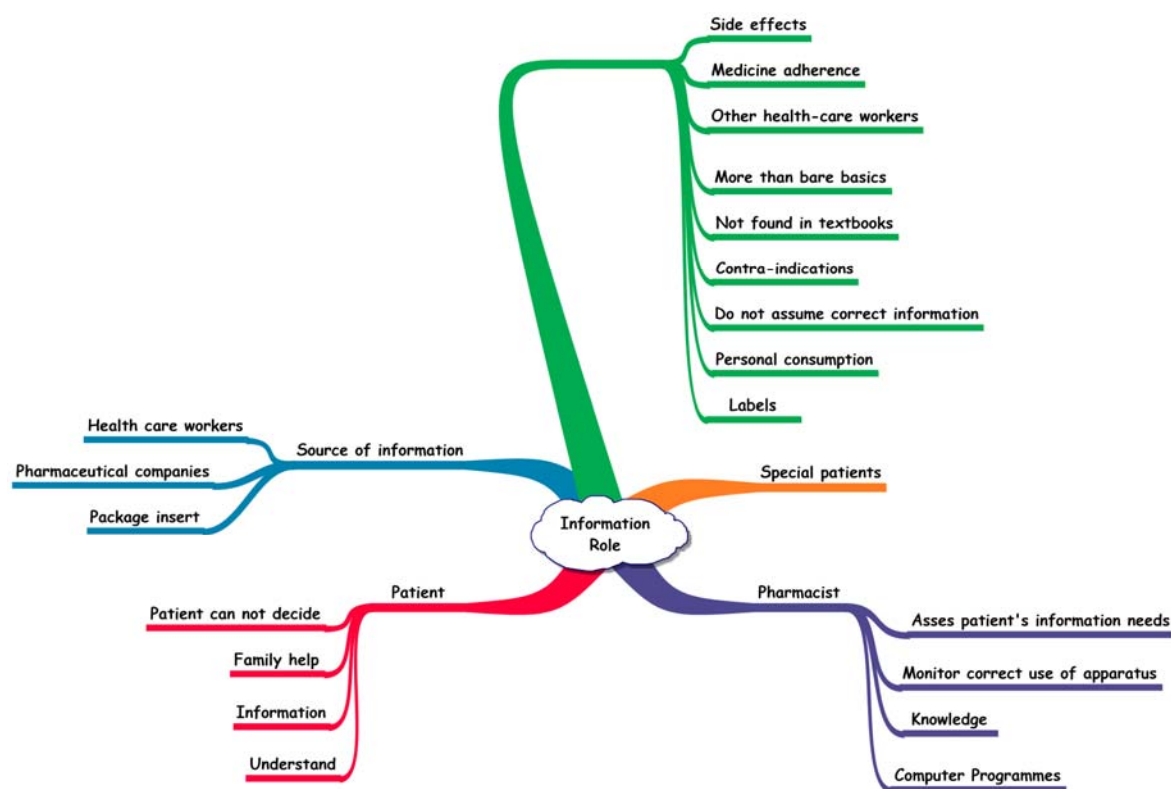


Figure 4.5: A visual representation of the sub-affinities of the affinity Information Role

4.5.6.1 Source of information

- **“We try to do information sharing through the doctors. We often use our nursing sisters as well.”**

The pharmacist does not always have all the information and then they make use of *other health-care workers* such as medical doctors or nurses to acquire information that is requested by the patient.

“For information we try to go through the doctors. We often use our sisters as well especially with our babies, baby clinics, immunization and to explain why there are different kinds of baby milk. We do not do that kind of thing every day. We have a paediatrician here, so very often when you as pharmacist do not feel sure you quickly contact Dr Ped and ask him: “A mother discovered that you cannot use Medicine A for a child under 2 and the pharmacist said that you cannot use it but we have prescription here for it so can we use it or not an what do we do?” The patients will often have more information themselves so if they need more information, we give information to the patients. We make it easier for them to get everything under one roof, in one building. So it is a little different information that we give to the patients.”

- **“... and the role of the reps is very important.”**

Information from the *Pharmaceutical companies* regarding the unavailability of medicine products will empower the pharmacists to provide their patients with proper information.

“If there is a problem with their product they do not always keep us informed, which is a pity for me. It would be great for me if the pharmaceutical companies could rather send you a letter in which they tell you there is such and such a problem so that you can give it to the patient, black on white. This now where the problem lies, and this is why we also do not have medicine.”

- **“I learned right at the outset, when I started working, to take out the package insert and throw it away.”**

Experienced pharmacists remove the *package insert* from the package as they are afraid that the patients ask too many unnecessary questions regarding the side effects.

“If correctly used the package insert can positively assist the pharmacist in the information role. We only give a patient a package insert if he really wants to read it and know what is going on. Then I take one out and give it to him to read. I will try to explain to him in the insert what the possible side-effects and things are and I give that information. You get people who want those inserts. He wants to read about all the side-effects. He wants to feel all those things. We tend to accept as pharmacist that a person will know how to use medication and the patients do not

always know. I do not always get package inserts. At first I tried, when I started working, to take it out and throw it away because the older pharmacist said the patients, once they have read those side-effects, then they will believe everything they get. Sometimes I wonder whether it is not better to leave it there, then they can go and read them at home in their own time because I do not know whether all the information always comes through as it should."

4.5.6.2 Patient

- **"He cannot decide for himself what he should do when ..."**

Some older *patients cannot decide* which of the many medicines need to be taken when and often depend on the pharmacist to help him/her to adhere to the correct instructions.

"Then the medicine did not come by courier. Now the patient wants four of each of his tablets in the meantime and that man uses 20 items. Some every four hours, some every six hours, and you cannot give him 20 boxes of pills. He cannot decide for himself which he must take when ... so you, the pharmacist, must put eight o'clock, ten, twelve, four, six, and eight, ten in pill bottles. This is a man who has come to buy four days' stock of everything, but it took me two hours and he wanted us to divide it up for him like that."

- **"Sometimes the patients are not really capable of controlling their own medication and then it is necessary to give information to the spouse as well."**

The pharmacist often makes use of the *help of the family*, children or spouses, to ensure that the patient adheres.

"Sometimes the patient is not really capable of controlling their own medication, and then information to spouses is also necessary."

"I try to explain this to them as clearly as possible. When they still do not understand, and get rude about it, then I will again explain in the nicest possible way, and then if they get angry and walk out I will try to involve family members and explain to them: "Ok, just make sure that they take this thing correctly." Sometimes it is better to involve their spouses or their daughters if it is old people and to explain the situation to them."

- **"What I definitely notice is that the patient, if they have a question, will go the retail pharmacist."**

Patients acquire *information* from the source they are comfortable with.

"What I have definitely noticed is that the patients, when they have question, will go to the retail pharmacist. I have also worked in corporate pharmacies, and I cannot remember anybody saying

to me: "Listen, I have this thing on my hand", or "I have this thing behind my ear, can you tell me what it is". I cannot remember ever having such a case in chain store."

- **"If a patient does not understand why he has to take medication, then there is no reason for him to complete the course and his adherence will be very low."**

The patient must *understand* the instructions as well as the reason of the use in order to adhere to the medication regime.

"If the patient does not understand why he has to take the medication, then there is no reason for him to complete the course and his co-operation and adherence are going to be very low. The role of the pharmacist is exactly to ensure that the patient understands the medication and why he has to take it and what specifically each medication is intended for. It would definitely be the most important part to explain to the patient very carefully and to motivate why he has to take certain medication. How he should use it, the reason for it, and effect that it has, and to explain the possible side-effects. If you as pharmacist say twice a day, then he should perhaps say one in the morning and one in the evening, because "twice a day" does not mean the same to all patients. Now they might just interpret it differently. Sometimes I find that patients do not always understand the instructions on the labels, even if it is logical for pharmacists. If they say "one tablet per day after meals" then they think that he must take it three times a day and typically if you use those abbreviations. He does not discriminate if it says after meals and whether it should be done two or three times a day. I remember that as a child I went to the pharmacy with my mother. That is now after coming from the doctor and she would get her medicine and we would go home. Then when we got home we would not know what was what. "Which one is the antibiotic? Oh, perhaps the one that goes into the fridge is the antibiotic." The pharmacist should not assume that patients know these things. Explain to him that this one is for pain and fever, this is the antibiotic, that one is an anti-inflammatory. Explain briefly what it is, so that they can just know what medicine works for what. What I as pharmacist used to do if one gave a repeat, especially with chronic medication, then one can see on the computer when last the patient had received it, and how he adheres. If he comes once every six weeks for thirty or forty tablets then one knows that he is skipping and the patients should then just be informed of plasma half-life and how the medication works. One has to use this every day to maintain those plasma levels and just to ensure that the patients understand how the medication works."

4.5.6.3 Pharmacist

- **"If your patient is not interested in pharmacology and interaction of medicine I would frustrate you and you will in any case not listen."**

The pharmacist must be able to assess the patient's level of information needed in terms of difficulty, quantity, detail, ability and comprehension.

"People must also balance the information that they give their patients. Then it is in their best interest to involve the doctor as well and to tell patients, to complete this course. Obviously they need that information that a five-day course will be sufficient otherwise they will go on stressing the whole time but I did not finish my antibiotic and the stress makes them even more sick. So if they have balanced information about whatever the reason is why they should or should not complete the course it can ease their minds and they can take the right decisions. Here it also depends on how curious a patient is. Does he really want to know how the medicine works? This depends on how much information the patient wants, which will again tie in with communication skills of the pharmacist too. The pharmacist must be able to "read" when the patient does not want to know any more, when he is beginning to bore the patient with information that he (the patient) does not want or need. Must he tell the patient in detail where exactly in the body the medicine works and does the patient have the knowledge to be able to process the information. Or will the pharmacist be talking over his head and the patient will not be able to understand what it is all about? The extent of the information that he gives will depend on these factors. You must convey the information in a comprehensible format. It does not help if you give the patient all these big words and he does not understand them all. If you give information, he must be able to understand it. Perhaps tell him: "This pill you must take every day for the rest of the time", or tell him "Only when needed". Some people simply hand in the script and there he goes. It effect adherence if you tell the patient: "This tablet you have to take regularly and perhaps go to the doctor again after ten days and tell him if it works or not. But if you must spend eight minutes per client, then there is no time for all these things, and then it gets a bit out of hand."

"You have to be sensitive about that. If a patient only has headache tablets and he is not interested in reading about it, then you do not even ask him. You can determine if he wants to know more about the side-effects of his aching legs and of his statins. Then you are going to give him a note and ask him to read for himself what it is that can happen to him. If a patient is not interested at all in Pharmacology and the interaction of medicines, then I will frustrate him so and he will not listen in any case. He would rather go to another pharmacist who will help him quickly during his lunch hour. There are some people who just do not want to chit-chat. For that patient you can rather give an insert and say: "Here is some product information about your condition." Then he can just highlight the points. "The rest you can read if you have the time and you need more information." It is the paper, or actually the tool that you as a pharmacist have if you have time and you need more information to do that bit of counselling if you cannot do it within the time you spend with him."

- **“But there are patients who come back say the spray does not work, and then it is because they never took off the screw top.”**

The pharmacist needs to *monitor the correct use of apparatus* by the patient and to provide guidance and information to facilitate medication adherence.

“It is very important because if you point out a mistake to the patient like: “Sir, you have actually been using your asthma spray wrong all these years.”, and he says: “But nobody told me!” “Yes, but you are now a new patient here with us, and we take care to give proper patient advice to every patient.” Then that patient will really have confidence in you and know that you will always give him the right advice and the necessary instruction. Because I have actually seen somebody who had been using an asthma spray wrong for five years. The pharmacist accepts that the patient will understand it. Small things, such as that you must inform the patient that he should first remove the top of the asthma spray before using it. It is reasonably logical for us but there patients who come back and say that the spray is not working and they never took off the top. So then all the dosages got squirted into the top, and technically it is your fault as the pharmacist.”

- **“If you do not keep up with developments in science and clinical science or research, then that can influence your informational role.”**

The pharmacist has many sources available to update, renew and refresh his *own knowledge* base namely textbooks, research, internet, training sessions and more.

“It is extremely important and also now absolutely essential that one should attend these information sessions of the pharmaceutical companies. You have to be abreast of all the new products and your knowledge of pharmacology has to remain good. With the Pharmaceutical Company X Pharmacist Summit we had a whole session on probiotics and that information is something that I convey to patients every time I have time to chat to them without interruption. You must, if you have forgotten something, look it up again. One can use a book and look it up because it is impossible to remember everything. It might also even be nice for the patient to see: Do you know, this pharmacist also looks up things in a book, she makes very certain and then they will have confidence that you will give them the correct product information. Then you can perhaps suggest something: “Do you know, Sir, I see you are still on this product. There is something new available now which has far fewer side-effects. Would you like to talk to your doctor, or would you like me to call him?” People took Medicine F in the morning, and then they had to sit upright for half an hour, and older ladies would say that they were now retired and would like to get back into bed with a newspaper and a cup of coffee, and now they are not allowed to. Now the prescription is repeatable for six months. In the meantime the once a week product Medicine G comes onto market and you tell them that they only need to do it one morning in the

week and you are their hero. That additional information that I read helps me to give extra additional information to my patients, and to help them understand.”

“CPD (Continuous Professional Development) is important for the pharmacist to remain at the forefront of development so that he can supplement his information role from time to time. I see it often in practice that a certain condition is treated in a certain way, until there is a shift or difference in the protocol that changes. If you cannot remain informed about the developments in science and research this can have an influence on your information role. Information is something that flows from person to another, and it is not only from the pharmacist to the patients. Information should also come to the pharmacist, and this is where a big role is played by ongoing research and teaching, training and so on. Where the pharmacist can from time to time update his sources of information and this can also influence adherence. The role of information, the knowledge that you have. If you have enough knowledge and you can convince the patient with you knowledge and facts, then the guy is going to see: “Listen, this pharmacist is not only a pill pusher. He knows a bit more than the ordinary bloke. He does know what he is talking about.”

- **“So in a response from the system he often gives you interactions and stuff.”**

The pharmacist has *computer programmes* at his disposal to assist him *inter alia* with information regarding interactions between medicine and other substances for his role in providing information to the patient.

“I have a wonderful programme on my system. This is programme X. Sometime programme X tires us out because there are at least three times a red warning on a prescription, because it is for example Medicine A that shows an interaction with Medicine B. Then he takes Medicine B in the evening and Medicine A in the morning. Then that red Programme X is gone. I think that legislation is going to be developed to force us to put these warnings on our labels. For me it is a very good thing. I hope that all pharmacies will one day be able to give such professional warnings to our clients. It is not going to show all the interactions to you. The lady is on Medicine C and now she gets Medicine D extra for a month from me. This is not going to be picked up any more. So in a response from the system he often gives you interactions and stuff. The system tells us about interactions. If you get all the medicine from me, I will pick it up. If everything runs through the electronic system it will be picked up. If the patient buys his sleeping tablets cash from another pharmacy, and he gets his other medication, more sleeping pills, from me, I am not going to pick it up. So if the interaction is really an interaction, I can give him that information. There are really many medicines who have a warning about your grapefruit – cytochrome P450. This is one of the first warnings that I put up. Then the old lady called the next day and said that

she had not started taking her antibiotic because she had eaten an orange the day before. Then I realized that one has to very discreet with those warnings."

4.5.6.4 Information

- **"But out of the experience of the pharmacist and previous experience with medicine, he must tell the patient about the most general or important side-effects."**

The pharmacist needs to provide the patient with the most important *information regarding side effects*.

"It is dangerous to go into detail about side-effects and counter-indications and such types of things, because you do get patients who will say if there are 50 possible side-effects they will get all fifty. One should not go into too much detail about all the possible side-effects. But out of the pharmacist's experience and previous experience with medicines, he must inform the patients about the most general or likely side-effects. Or perhaps just say in general: "If you do get a skin response you might be allergic to the medication. Phone me or come back or go back to the doctor." Just tell the patient what he has to do in certain cases. But do not expand on all 100 possible side effects that he might get."

- **"I realised that advice about adherence must be done every time."**

The pharmacist should with every encounter provide the patient with advice regarding *medication adherence*.

"I have realized that advice about adherence must be done every time. One tends, if as a pharmacist you come under pressure, that it could be left, but it is important, you must have constant battling. You have to do it every time. Otherwise you will lose it. You have to be able to make sure in a way, and this is why the time spent on a patient is so important. You must be able to make sure that he knows all the implications and the aspects surrounding the situation that you deal with during the consultation."

- **"It is still important that the pharmacist should at least tell the patient what the medicine is for, what it works for."**

All applicable information, more than the bare basics regarding the usage of the medicine, has to be communicated to the patient.

"If a pharmacist only focuses on the handing out and dispensing of medicine – there is a very big difference between the flow of information that goes to the patient as against the pharmacist who receives the prescription and has to think forward and out of the box about what situations are applicable, what outcomes are needed. There is a big difference between adherence for that

patient and the other one who received the information and who knows what he has to look out for, where he is going, why it has been prescribed and what for. You, the pharmacist, add extra information. You communicate with the patient what you would like him to do. Must he take the cortisone now and then every morning after breakfast, or must he only take it once and then not again? You have to communicate with him specifically what you want him to do with the medication, because the information on the labels is often confusing. I have had a number of people calling back and then I could explain to them: "Listen here, how must I use it again? Is it 3 times a day, or 1 time a day or what? It remains important that the pharmacist should at least tell the patient what the medication is for, what it works for. Then also, what goes without saying, how the patient should take it. That is also on the label. "You must not take it with milk" or there might be other information that the patient is not necessarily going to know and which you as pharmacist will not be putting on the label. So, if there are special directions for use, say it to the patient. Let him at least know how he has to use the medication. Sometimes you talk while you are busy, and this will remind the patient of something that he is feeling. Then the patient realize: "Oh! So that has been a side-effect of the medicine all the time!" Or you say that since you have been using this medication you have had a headache? Or since using the medication you have been coughing. Or since you have been using the medication you have had a skin irritation."

- **"Each type of disease condition and each sort of prescription will usually typically have a few grey areas."**

Over time the experienced pharmacist can provide the patient with information *not necessarily found in textbooks*.

"The prescription has to be repeated regularly for the treatment of an under-active thyroid Medicine E. The grey area is normally that patients continue for a long time with the same dosage and they do not simply ask the doctor for a new prescription when the old one lapses. And one forgets that the pharmacist's role is actually to provide the information that is needed for the patient to understand that the doctor also from time to time does tests. And that the patient's need for the medication can differ. Just like with insulin for diabetics. Each kind of disease condition and each kind of prescription usually has a few typical grey areas. What a pharmacist learns by way of experience is the skill to identify those grey areas and then develop a strategy specifically for the informational role that he has to play. Where a patient is being treated for an infection, there are antibiotics and painkillers. Then the grey area is usually that the pharmacist must immediately realize that the patient must, by means of the information that you give him, know which one is the antibiotic, which has to be used regularly, and which is the painkiller, which is only used when needed."

- **“This is also an important part of the Information Role to illuminate important negative aspects.”**

The pharmacist needs to point out important negative aspects such as *contra-indications* with other medicine as well as side effects the use of the medicine may cause.

“It is also an important part of the information role to illuminate important negative aspects, but one has to take care to communicate too many negative aspects. A lot of information is needed, negative and positive. It should be done professionally, the counselling. “Your balance is not so good anymore?” “Yes.” If the pharmacist has not mentioned it, initially when the patients started taking the medication, then the patient does not know it is possible that it is caused by the medication. A pharmacist who gives that information or who takes the time to give that information, will tell the person; ‘You just might ...’ or ‘If you experience anything like that it might possibly be the medication, but it might get less with time. If it does not, then we have to look at something else.’ So the pharmacist must know that must share certain information with you, and you (the patient) must know what kind of questions to ask to get the information. If a patient does not feel well if he uses medication, then he stops it, and then he does not stabilize on his medication, such as blood pressure medication or diabetes. Contra-indications are important. If you as pharmacist know your patient, and you know what other medication he uses, it is easier to pick up than when there are contra-indications.”

- **“There are a lot of patients who will not know things that they are not doing, what they did not know.”**

Never assume that the patients have the *correct information* and knowledge of even the most common aspects of the medicine usage.

“The doctor prescribes it, but is there ever really somebody who now explains to the patient: “Listen, how do you use that insulin? Where do you inject it? How much do you inject?” This information role or these actions can be taken by the pharmacist. If I take all our chronic patients and call them in and ask them certain questions about their chronic condition, or the use of this medication, I will assure you there are a lot of patients who do not know things that they should do, or that they did not know. If the patient comes to me and ask me about the different types of blood pressure medication then I will be in a position to explain to them nicely and we can go and sit down and it is a sort of consultation, and I will be able to explain to the patient well.”

- **“There are a lot of legal technical aspects that a pharmacist also has to keep in mind.”**

The patient needs to understand that the medicine received is only authorized for *his/her personal consumption* under very specific circumstances.

“Legal technical aspects are also a very important thing in the whole issue of adherence. If you give a patient Medicine M, that morning after pill. You often find that the male partner in the relationship will come in to buy it and then you have to have the skills and the knowledge, the professional knowledge, to say to that person why you are refusing to give it to him and to say it in a professional manner. What you experience in practice is then that the man gives it to the female partner without her knowing it. There are a lot of legal/technical aspects that also have to be kept in mind. Many of the higher schedule medicines need a special information role. You neglect to explain to a patient that he is not allowed to give that medication to another person. It is often offered to a friend or a relative in need. An important part of the information role ties in with the pharmacist’s professional actions around the legislation within his working framework.”

- **“By simply using the right words in the limited space that you have on the labels, you can drive home the most important points around adherence.”**

Labels on medication need to be utilized by the pharmacist to provide the patient with essential and important information.

“A pharmacist must put as much information as possible on the label. Those labels that you type. This is an important habit, and a skill to develop. By using just the right words in the limited space that you have on the label, you can drive home the most important points about adherence. You can indicate that it is an antibiotic and that the course has to be completed and it should be kept in the fridge. So, there are three or four important points of communication that are fulfilled by the information role. Because the patient out there in the end of the day relies most on the information on the label. It is important that the pharmacist should try to get as much information as possible on the labels. Something that I think is good practice is, when you have space on the label, to say what the medication is for: Take one tablet three times a day for pain and fever. Let the patient know that this is for pain and fever or in the case of antibiotics, complete the course. Let him see on the label what it is.”

4.5.6.5 Special patients

- **“You should not really say too much. Because many people can interpret things wrongly.”**

The pharmacist must always assess the *special patient’s need* for information especially for mentally challenged patients in an institution.

“The patient is absolutely in a trance. There is no other word for it. He is absolutely in a trance. It is actually dangerous to say something to him, because you do not know how he is going to interpret it at home. Not all patients have caregivers what can drop it off for them. Many people

get there, are dropped off and they are picked up again later. They do not even get near the pharmacist or the doctor.”

“You should actually not say too much, because many people can misinterpret things. “That doctor says that the medicine is going to cause headaches for me. Why do you give medicine that will cause problems?” I have learnt that about detail you keep quiet until the patient tells you what they want to know. Then you tell him important things, such as: “Do not use together with alcohol.” You should not give him a whole list of things, he is not going to remember. It goes in the one ear and out of the other. If I do a script and the person is standing in front of me, I say: “Remember this medicine can do it.” But only give the bare essentials. If the person then asks me, I will give more information.”

4.5.7 Motivational Role

The Motivational Role is the primary outcome of the system. Several sub-affinities were identified during the axial coding of the individual interviews.

A graphic representation of the Motivational Role affinity can be seen in Figure 4.6. The sub-affinities are explained thereafter.

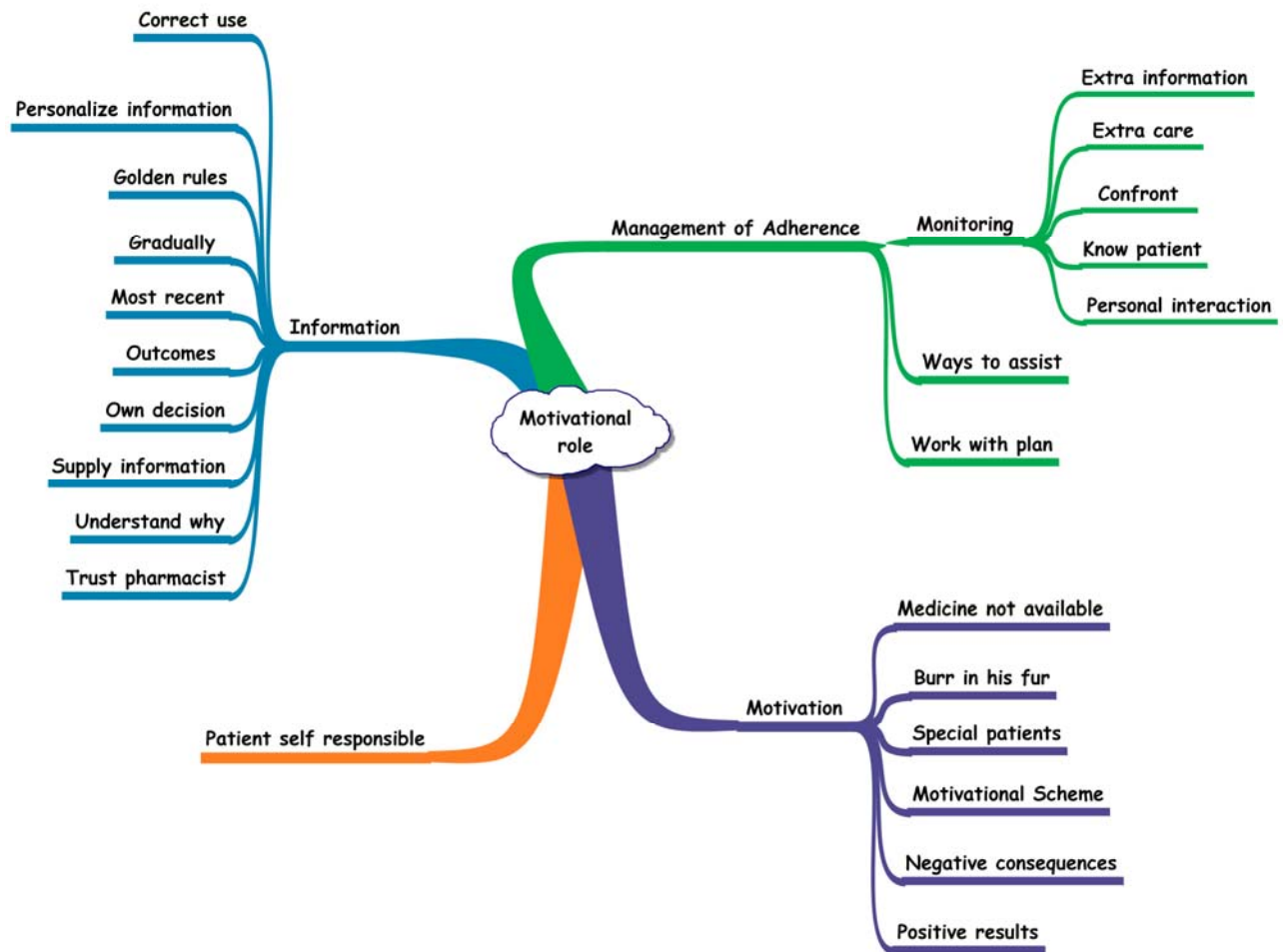


Figure 4.6: A visual representation of the sub-affinities of the affinity Motivation Role

4.5.7.1 Information dissemination

- “The patient should know about all the possible dangers if there is no good adherence, whether he does not take the medicine at all or if he drinks it at the wrong times.”

The patient needs to be *informed* of the dangerous effects if the medicine is not correctly used.

“The patients should know of the dangers if there is no good adherence whether he does not take the medicine at all or if he drinks it at the wrong times. Three times a day for him might be eight and ten and twelve o’clock, then he will know that he has taken it three times. So there are dangers if it is used wrongly. Once again it has to do with information. Explain to him why he has to drink it like that. Or try to explain to him in simple terms how medicine works. Try to do a graph or something that the patient will understand to explain to him why he has to take it every eight hours. And if it says three times a day do not take it at eight, ten and twelve – you have to try to spread it over a 24-hour period.”

- **“Knowledge is power”**

There are *golden rules* that the pharmacist should tell the patients when they are taking *medicine*.

“Knowledge is power. The patient must know what he taking and for what, and how he should drink it. It is communication of information of what it is used for, how long you should keep taking it, how you feel. Can what you are feeling be remedied in another way? To drink a pill for nausea is not nearly as bad as having to manage anaphylaxis. It is also all about how the patient experiences it, why they have to take it, whether the doctor wants them to complete the course, whether they can get something else that might make them less sick. It comes to blood pressure medication, where the patient asks: “Why do I have to take this blood pressure medication? Then I, the pharmacist, tell him that: “You can skip your medication for two days, but then make sure that you have a blood pressure gauge at home and take your blood pressure three times a day, and see how it fluctuates. The moment it goes over 140 it becomes dangerous for you, it is not yet dangerous, but it is dangerous for you.” This and that are the effects that you might experience – you might get a heart attack, you might get a stroke, and naturally all the other negative effects that go with high blood pressure. Then I will also explain to them that when their blood pressure is under control, one is less prone to stress, and have a lower tendency to get tired. They do listen, but one has to take trouble to explain it to them. Often it is also good to use an example, then they will believe you more readily.”

- **“One does not need to give a patient all the information if he comes to you with a new prescription for the first time.”**

Do not overload the patient with information at once but rather give it *gradually* as the long term relationship develops.

“This also again ties in with whether you as pharmacist know your patient, and whether it is a regular patient. One does not need to give all the information if he comes to you with a new prescription for the first time. It will be difficult for the pharmacist to remember what he has already told the patient and what not, but the first time give him a broad background to his condition, and how the medicine is going to help to make him better. And the next month when he returns for his repeat prescription, then you expand a bit about one of this aspects. Tell him a little more about the dangers if he should not use it right. In this way you build on the basic support that you gave the patient on the first occasion. This is a long-term relationship.”

- **“And tell them this is the new research. It has to be done in this way. Otherwise you might hit a dip and have to take antidepressants on a permanent basis.”**

The pharmacist must make sure he/she has access to the *most recent* developments and newest information regarding the illness.

"You really have to convince him that he has to continue taking that medicine for so long. We sometimes get training, especially about depression medication and every time they come with new research. They first said that people should take it for six months and now they say that once they are symptom-free they have to continue taking it for another year before dropping the anti-depressants and people do not want to do that. You really have to convince them. You have to try to explain to them what you have just learnt and tell the patients it is new research. It has to be done this way, otherwise you will have a setback and have to take the medication for the rest of your life. Rather now take it for a further year, than you have to take it for the rest of your life. So the patient will listen, but the pharmacist has to take trouble to explain it to them."

- **"Good outcomes that are achieved also serve as motivation."**

The patient will be motivated more when he or she is working towards clearly defined and known outcomes.

"Something that plays a big role for the pharmacist in motivation, is the envisaged outcomes of any prescription or intervention or consultation that should be properly communicated. You must help the patient understand that through adherence he will achieve a particular outcome. If you do not state these outcomes, often those outcomes are things that the patient is not even aware of. The person being treated for anaemia has to use iron. He might not even know that he has to come back after a month to the doctor or the pharmacist for a blood test to determine whether his condition has improved or not. If he understands the outcomes, or the desired outcomes, then this can play a good role in motivation. Especially conditions like diabetes – where the patient not only have to take his/her medicine correctly, he/she to adjust your entire lifestyle. They might take their medication correctly but they are not willing to make those lifestyle adjustments. So then it is only a half-hearted effort. They will not really achieve what the doctor wants them to achieve. Good outcomes that are achieved are also used as motivation. If you can convince him to be adherent with the use of his medication, and he experiences the outcomes and especially if it is a substance that has to be used over a longer period of time, then he will be more adherent. He is achieving an outcome, and he knows what to look out for. Every time he achieves something, or sees that he is achieving something, this is added to the motivation to keep adhering. Let us take the prescription of a person with an antibiotic, a painkiller and fever medication. He must know that one of his outcomes is to use the fever medication so as to experience so many hours without fever and he will feel better. So it will make him adhere to take his two tablets immediately when he feels feverish. Where otherwise he might not have done this, he would just have taken two tablets three times a day and he did not know about the outcome of the medication."

- **“Then it is, for him, only a storekeeper where he has to pick up his medication.”**

Ultimately it is the patient's own decision to be motivated.

“Then there is not much that you can do. You can only try again and again to explain but if he as patient makes the decision.....Then the patient does not regard you as an expert in the field of medication, and how to use it and you are only the store man where he fetches his medication. But the information is not important for him at all because in any case he does not follow your advice.”

- **“Do not be worried when this happens.”**

Personalize the information for the patient and set him/her at ease.

“If you use this, you might feel restless and you might have a dry mouth but use and think of it as normal. Do not worry if this happens”. The most important thing is that one must have that communication between patients and pharmacist.”

- **“But as soon as you understand what something is about, then it makes it easier for me to see the big picture and to see how things fit together.”**

Inform the patient so that he/she understands why the medication needs to be used and then the patient will be motivated.

“If I as a pharmacist have to do something and I do not understand why I have to do it, or what the influence of it is going to be on other people or on my environment, then I am not in the mood to do it. But as soon as I understand what something is about, then it makes it easier for me to understand the big picture and to see how things link up. If you as a patient understand why you have to take something as it was prescribed, and what the consequences could be if you do not do it, then it will make it easier for you to take your medication correctly. It depends very much on the pharmacist's own nature, and definitely that of the patient as well. I will do something if I understand why I have to do it, and what the result would be if I did not do it. So I understand what it is all about. Where you have to tell somebody the patient: “If you have not done this by this afternoon you will be in trouble.” Then that person might just do it, because that is his nature and that is how he functions. I am not going to do it because I want to know why I have to do it. The most important is that they should understand why they should use the medication correctly. Especially diabetics who sometimes change their lifestyle and do not eat the correct food. As long as they understand that this medication prevents your feet from falling off or if you have blood circulation problems and the fact that they can physically die if their blood pressure should rise so high that it gets out of control. I once explained to a patient about the medication equal level and why he should take it as a certain time of the day, so that there is always an equal level of the

medication in his body to keep his condition under control. As soon as they understand why they have to take it and how it works, they tend more to drink it at the right times. With chronic medication it might be even more important, because in the case of acute medication, you take you headache pill and in a while the headache is gone, and no further adherence is needed. But in the case of chronic medication I think the patient should understand why he has to drink it and what will happen if he does not do it. Because he might get a stroke which in the end might kill him, simply because the adherence was not right."

"If you have the right knowledge it can make a difference. You can now, with the knowledge that you have, explain it to him. The medication that has been prescribed to be used, you can explain to him: "Listen, here Uncle, the doctor has now prescribed this stuff for you, but it is very good medication. We have many patients who are on it, and after six months they stop using it because it is not needed any longer, because they are healed, because this thing works like this and like this like this. It is very effective and the treatment is effective." Now he, the patient is sometimes somewhat lost and he is looking for something to hold onto but he now knows what is going to make a difference or what can mean that he will live longer."

- **"The best thing that the patient can do is to trust the pharmacist to convey that information to him."**

The patient will benefit by *trusting* the pharmacist to transfer the knowledge and information regarding his/her illness.

"The best thing that the patient can do is to trust the pharmacist to convey that knowledge to him. If the patient has trust in the pharmacist to do this well it is the right place for me as pharmacist to be. If the patient comes to me and asks me about the different types of blood pressure medication, then I will be in a position to explain very nicely. We can sit down and it is like a consultation and I can explain to the patient well. Personal experience plays a role to explain to patients and to influence their adherence, because if they cannot trust the pharmacist for a personal reference. If they say, but you do not know, you have not tried it, how will you know? The pharmacist can also play a role model role. If the patient regards the pharmacist as somebody to whom he looks up, and he receives information, then the status or the charisma of the pharmacist or his professionalism will be more strongly experienced, and this motivates patients to do what the pharmacist advises. The role of the pharmacist is to explain the medication and once again not only with the patient but to be able to communicate with the doctor about the medication if there should be discrepancies. If you have a different recommendation, it can be communicated with the doctor and the doctor might be amenable to a different suggestion from the pharmacist."

4.5.7.2 Management of Adherence

- **“If you confront somebody, and say: “But you did not get your blood pressure medication last month.”**

In the management of adherence the patient needs to be monitored and be *confronted* when needed.

“If the pharmacist confronts the patient and says that he did not pick up his blood pressure medication last month. “No, but I am now only taking half a tablet a day” And then they have not even been to the doctor or nothing. Then it is very important within the role of the pharmacist to say: “But let us then take your blood pressure quickly and see whether it is adequate.”

- **“This is not only a transaction. It is not a random person bringing a piece of paper and looks for pills and there he goes. This is somebody who is going to return in two weeks’ time.”**

Extra care from the pharmacist will motivate the patient even more.

“Sometimes especially if it is a resistant infection – bone tissue infection and they have to take Medicine A for it and it has terrible side-effects. Which you have to explain to people: “Listen, but this thing is going to get out of control completely if you stop using this medication.” The one woman struggled so with nausea and she felt terrible, and I told her: “Drink a pill for nausea, you only have one day to go and let us see how it goes, and phone me when it gets very bad. Then you have to talk and explain very well to the patient and say why he cannot stop drinking the medicine now. Why is it necessary? What can we rather change? How bad is the pain? Does it never stop, or can we rather give painkillers, or should the whole regime be changed? A little encouragement to do it.”

“Then we called the patient two days later, and said: “Aunty, how are things today? Is the pain less? Remember, you are now day two of seven days. Let us know immediately if you feel worse.” Those old people. You as pharmacist make them weak at the knees. They tell the whole family that the pharmacist has called them. This is what a retail pharmacy manages so much better if you are with the patient in their struggle. This is not only a transaction. It is not a random person bringing in a piece of paper and looking for pills, and there he goes. This is somebody who is going to return in two weeks and then you are going to ask him: “how is it going with your child?” or “Is that spider bite completely gone?” We had a lady who came to show the pharmacist her new hip after a hip replacement. Nothing to do with medication, but he had called her and asked how the operation had gone. Then she said: “But I will come and show you. Then she came to the pharmacy and she showed him. You do get patients who do not want to be heard from again, and then you get others who say: “Listen, the pharmacist just did that little bit more

for me than anybody else. I patient again have that confidence and the pharmacist is with me in this thing, and he also monitors my disease and he monitors my medicine usage.”

“The most important thing is communication. You must tell the patient that he should take those pills regularly and after ten days see how things are going. You have to be able to call him, say after ten days, and say: “Listen, Uncle Jan, how things are going?” But I think that it is important, that one can follow up. You could say: “Uncle, have those pills worked? Have you been back to the doctor?” If it is possible, you can even drive over to him and say: “Uncle, let us see, are you using your stuff correctly?” especially for old people. That interest will motivate him to use his pills. If you now say to the patient: “Listen, Uncle, I see you are now diabetic and when last did you test your HbA1C?” And you do it for him then automatically that patient is going to feel more comfortable and he will have confidence in you and he will think that at least you look after him, you are interested in his well-being. “For the sake of those around you who are dependent on you and love you, it is your responsibility to look after yourself better. Let us see how we can help you. Baby steps, begin with one single thing. Let us just try to put more fruit in your diet. Let us see how we can spread you meals better through the day, without taking any drastic steps. Especially with a diabetic, you cannot just eat a big plate of food in the evening.”” Here I monitor my patients who are close. I also took the blood pressure of an 85-year old lady. Her blood pressure looked very good and very well under control. If a patients leaves me he/she must have well-controlled blood pressure and not paper blood pressure. Then I said: “Aunty, if come back in a week to buy bread, just pop in quickly and let us take your blood pressure. And then the pressure was something like 182 over 122. I asked whether she was taking her medication right, and she told me that she had stopped taking the pills because I said her blood pressure was so good.”

- **“And then one day he comes into the pharmacy. Then he said he thought he knew what the problem was. He was drinking two litres of Coke every day.”**

When monitoring the medication adherence of the patient it is sometimes necessary to provide extra information to or receive extra information from the patient to be successful.

“A patient whose sugar just did not go down. We pharmacists had already monitored him from the morning to the evening and then one day he came into the pharmacy. Then he said he thought he knew where the problem was, because he was drinking two litres of Coke a day! We have a great many patients and clients, but then you do try and you think I have not seen that patient for a long time, and I look at the profile and wonder whether I should not phone and say that he should come and fetch his medication. Have you stopped taking the medication? Is the blood pressure down? This is the importance of getting a person to come and for preventative actions in future.”

- **“I am certain Uncle still has about ten days’ medication left?”**

It is beneficial for the patient if the pharmacist *knows more* of the patient’s personal circumstances.

“Those old people just travel around, and they easily take three months’ medication at a time. I am certain that the uncle actually still has ten days’ medication left. This is just one sheet. Somewhere at home there is still a sheet of this medication. It is that kind of interest in terms of monitoring, and monitoring together with the patient. This comes back to the fact that you must be able to read your patient. You must understand what is going to work for that patient and what is not going to work.”

- **“Actually it is my first choice that the patient should come in by himself, because then one has interaction with them.”**

Person to person interaction between the pharmacist and the patient is still the best way to motivate the patient.

“Actually it is my first choice to have the patient come in himself, because then you can see the interaction with them personally. You can see if somebody is not looking well, and then you can say, listen, how are you? But if you only always send it to them, then you never see them. He is now here, and he can also use complementary medication. Let us say that he is using a cholesterol medicine, and you can recommend this Product X to help with the muscular cramps as well. If you then show it to him, because it is always better to see something. You can tell him as much as you like over the phone, but one never knows whether he is going to listen, but if you say:” Look, here is his and that that and it is not even expensive and it will make this and that improvement.”

- **“You can for example phone the patient when it is time for his repeat and ask whether you can it ready so long.”**

The pharmacist has many ways at *his disposal* to assist the patient when the patient has difficulty with medication adherence.

“It was only SMSs that the patient got every day or so to remind about the medication. Yes, it did not work. What I have done that has worked was this medicine, the pill holder ... I have given one like that for an old lady in the old age home. I do not know whether she had Alzheimer’s, but she was very bad at taking it every day. Practically, then, it was effective in helping her to take her medication in time. Because you can see whether it is Monday to Friday, morning, afternoon, evening and you can see whether it has been taken. You put all your medication in beforehand, and this is a practical way to remember. You can for example call the patient beforehand if it is

time for his new repeat prescription and ask whether you can get it ready. One can use other skills in order to communicate with one's patient. I have also suggested that one can, by cell phone, remind those types of people of the basic things. Perhaps also develop another system. That you can perhaps call the patient later to inquire. "Uncle, if you take this pill you are going to feel much better. But you must not take it now and then, you must take it every day." And then a few days later you call and ask how it is going, or you visit. Between those two hours that you as pharmacist are home you have to go."

- **"If he now manages, his life expectancy is 30 years, while if he does not manage his life expectancy might only be ten years."**

The patient will be better motivated when he is part of the plan that they are working towards.

"I had a patient who was diagnosed, and he came from a background where his father and his brother and his sister had all died of diabetes which had not been controlled. Now he has been newly diagnosed with diabetes and he is very depressive about it, because he is going to die. So now he has to use the medication and it makes him feel bad and it is bad. The next step is the insulin, because he cannot only use the oral medication and it is a change of diet, within his lifestyle this diet is terrible as well as the adjustment to it and it is expensive. If you (patients) are feeling ill during the day and after a while you do not have a job anymore, you will not have an income. This is usually a long first discussion between pharmacist and patient and a weekly, sometimes daily follow-up. Just to get the patient to the point where he says: "Okay, I have been diagnosed but it is not such terrible news, it is not the end of the world." If he has reached that point, then you have the cards on the table, and then one has to look at how it is going to be managed. Very often it is because he do not really know. "I would rather not go to the doctor, because he is going to tell me that I have cancer.", or "I will not go to the doctor, because he will say it is not controlled."

"When I as pharmacist simply do not have the time to give that kind of information, while the nurse might have it, with the knowledge and the passion, it is perhaps good to say: "Let me refer to that person and she will do the screenings and give information. Then you can come back with the results and we manage it together with you medication". This is now where we refer to the patient support programme. You will not necessarily have only one person to take all the steps, but we then explain to the patient: "We as a team will look after you, and this is what this man is going to do." Just inform him properly so that he can know "this is the information that I am getting from the person, this is where that person comes in, and "this is the basis upon which we are going to have interaction with you". Then they are usually comfortable to work with more than one person."

4.5.7.3 Motivation

- **“Stick a burr in his fur.”**

Help the patient to identify a *small but persistent irritation* for focussing his/her attention on the wanted outcome.

“I once listened to such motivational talk – I cannot remember who the American speaker had been – but he said that a good businessman can for example use a technique known as “stick a burr in his fur”. This like putting a burr in his hair. It is that small thing that you just get to deal with, and that reminds you.”

- **“There are many persons who go to those pharmacies, and they can build up points, and in the end trade them in for cash. That is what motivates the patient to go to the pharmacy.”**

Some corporate pharmacy groups have developed *motivational schemes* to assist patients in their motivation to adhere to their medicine regime.

“The role of the pharmacies that I have been involved in, are schemes that the put in place. I might name them. The Corporate Pharmacy Group D has a card or a membership card. I do not think it is only Corporate Pharmacy Group D that uses it, but others as well. It is a good way to motivate a patient, because he gets something out of using his card. The problem is that this is something bordering on the unethical if you were to look at the ethical code of the pharmacy and recruitment. But I think that one can put schemes into place. What the corporate pharmacy groups do to attract clients or patients are these point systems and cards and discounts that they give. There are many people who go to those pharmacies to build up points and in the end they get cash for it. This is what motivates the patient to go to the pharmacy but it does not necessarily motivate your patient to use the medicine correctly and to obtain adherence in the end.”

- **“They are not really interested. They are not motivated to feel better.”**

Patients in *special care facilities* are not easily motivated with ordinary motivational methods.

“He (special patient) deteriorates because you can see that he was last here two months ago. Obviously the pills did not last so you as pharmacist can pick this up and you can tell him that the stuff is not going to work if it is only taken now and then. It must be taken every day. At the same time. Do not skip one day and so on. So you can tell the patient that you can pick up that he is not using his medication. I sometimes get the attitude that public patients think that because he is not paying for it he does not really attach value to it and then does not use it as it should be used. He does not have a job. He probably gets disability. For him a thousand rand a month is

enough because he is living with somebody. He has food and clothes. He does not need more than that. So what now motivates him to get better? Nothing really. They are not interested. They are not motivated to feel better. So their motivation is when he picks up a cigarette butt and smokes, and he is happy. This is what motivates him for a day. But nobody worries about him and he worries about nobody.”

- **“Perhaps that threat. Because I don’t know whether the ordinary way is always so effective.”**

Addressing the *negative consequences* of not adhering to their medicine regime may motivate certain patients.

“If you do not treat your chronic disease condition, then the effect in the long run might be that you might become blind or develop gangrene.” Which is then almost extreme, so that he can understand why it is important to manage now already to prevent him getting drastic effects within ten years. If he now manages well, his life expectancy can be 30 years. If he does not it might be only ten years. If there is understanding from the side of the patient that it is a much larger picture of: “I work with you because you have the knowledge”, then that is the motivation. There is a large component of denial, especially if you have been newly diagnosed with a disease condition. One must focus so much on the ... it is not always good – but on the negative things that can happen to you if you should not use them right. Perhaps that threat. Because I do not know if the ordinary way is always so effective. If for example you get a diabetic and you have to tell him that if you do not do this, this and that will be the results. So a pharmacist must focus a lot on the causes and effects if the patient does not use the stuff correctly. Sugar medication is not more difficult, because it is a matter of scare tactics. You can explain to the patient that if his blood sugar is under control, he will be less susceptible to cholesterol because then you do not get fat so easily because your insulin levels are under control. If your blood sugar is under control, you do lose that vascularization in your feet that might make an amputation of your foot necessary. You can lose your vision if you do not keep your blood sugar under control.”

- **“Because if you say a lot of bad things to the patient, he is not necessarily going to be motivated to use his pills.”**

Addressing the *positive results* of adhering to their medicine regime may motivate most patients.

“One should not put things in a negative light but in a nice way communicate to him what the objective of the exercise really is. Why did he go to the doctor? Why must he come and fetch his medication. The final purpose that he wants to achieve – what is it? One should not necessarily scare the patient and tell him that if he does not every day and every hour take his medication – such as that he should set his alarm – then it will happen! One must just take an informal approach

and give the patient the information so that he can understand what it is about. This motivational role and the information to my mind run together. Because by saying a whole list of bad things to the patient will not motivate him to take the medication. Your information that you give must not demotivate the patient to be adherent. The patient must get a clear explanation of what he can expect. For example antibiotics: "You will feel better in three days' time." So the patient will not come back tomorrow or even this afternoon and say that he is not feeling better. He will know that is why and how it is working and why he has to complete the antibiotic. You must be able to communicate correctly. You must convince the person or inspire him to do it. It does not help if you just tell somebody and then leave him alone. You must explain to him carefully about what the issue is and you must look as if you are interested."

"I motivate on the basis of information that I give. But I also support. You come on a monthly basis and we will see how it looks and I (pharmacist) will give you extra information or whatever your need is, and we begin with an SMS and e-mail. Then I will send you weekly or monthly information about your condition. Or I can give you stuff to read, fliers and inserts or whatever. Or discuss with me, the pharmacist, if your experience things, or call me. And this is where the call-in of the patient comes in. If you as a patient gets the message through your pharmacist that the medicine is waiting for him next month, or after 30 days, and it will be there. This is a small way of motivating him. He might perhaps think that you have specially ordered it for him, and this will make him feel a little bit better. The other thing is to put people in contact with support groups. Everybody does not like this, but it can be systematically imported into friendships, and then in a painless way it gets to be part of the lifestyle of your patient."

- **"The patient who comes in for repeats, and the same medication is often not available, has to wait for a day or two."**

The patient might be demotivated if his *medicine is repeatedly not available* on time.

"It is important for the patient to receive the medicine so that he can adhere. The pharmacist must be able to convey motivation for the patient. I have noted that once something has happened, even something as stupid as stock being on the shelf, it will play a role. The patient who comes in for repeats, and often the same medicine is not available, he has to wait for a day or two – he will become negative especially if it is a medicine that he is not supposed to skip for a day or two. If he arrives on the last day, and often they come when they have already skipped for a day or two, and then he has to wait for a further day ... this is a situation that can hold serious consequences for the patient."

4.5.7.4 Patient responsibility

- **“That responsibility is taken up by very few people.”**

The patient needs to take *self-responsibility* assisted by the pharmacist, for his/her own medicine treatment.

“The pharmacist has a role, but it is not his responsibility to see to the use of the patient's own medication. Somewhere the pharmacist hands over his responsibility to the patient. You as the pharmacist can equip him with the necessary information and motivate the patient and possibly give him a warning as well. Then you pass the ball into his hands and say: “this is now yours “and the patient must take over and get on with it. That responsibility is taken by very few people. This is really true – how nonchalant people are when dealing with medication.”

In the first part of Chapter 4 the researcher presented the themes and quotes that resulted from the axial coding of all the combined interviews of the interviewees (pharmacists). The affinities and sub-affinities as the elements of the system were described and explained in the words of the participants.

4.6 Theoretical write-up (Composite Theoretical Descriptions)

In the second part of Chapter 4 the relationships between the elements of the system are described with the quotes from the interviewees. The researcher used the process of theoretical coding by utilizing the Atlas.ti™ Version 7 programme as described in Chapter 3 and Annexure E. The relationships are presented by the interviewees and also deduced from the web-based questionnaire. Every possible relationship between affinities are then described in the words of the participants themselves and the process is called: The Theoretical Write-up.

The quotes from both the Web-based Questionnaire and the individual interviews were used to describe the relationships. The cluttered SID (Figure 4.12) was used to provide graphic reinforcement of the description of the relationships. The IQA is designed to describe the perceptions of the phenomenon or the lived reality of the group (Northcutt & McCoy, 2004:314).

The theoretical quotes presented here were selected by the researcher and organized into common themes and multiple quotes were woven together to develop a composite quote of the respondents. The researcher uses as little as possible commentary in describing the relationships between the affinities.

The sentence below the heading is a statement in the words of the researcher that tends to interpret the paragraph that follows. The remainder of the paragraphs consist of quotes in the

words or “voices” of the participants. The quotes are arranged in such a manner that they explain the relationship between the affinities.

The influence of External Barriers on the other affinities will be discussed next.

4.6.1 External Barriers

The affinities influenced by External Barriers are shown in Figure 4.7.

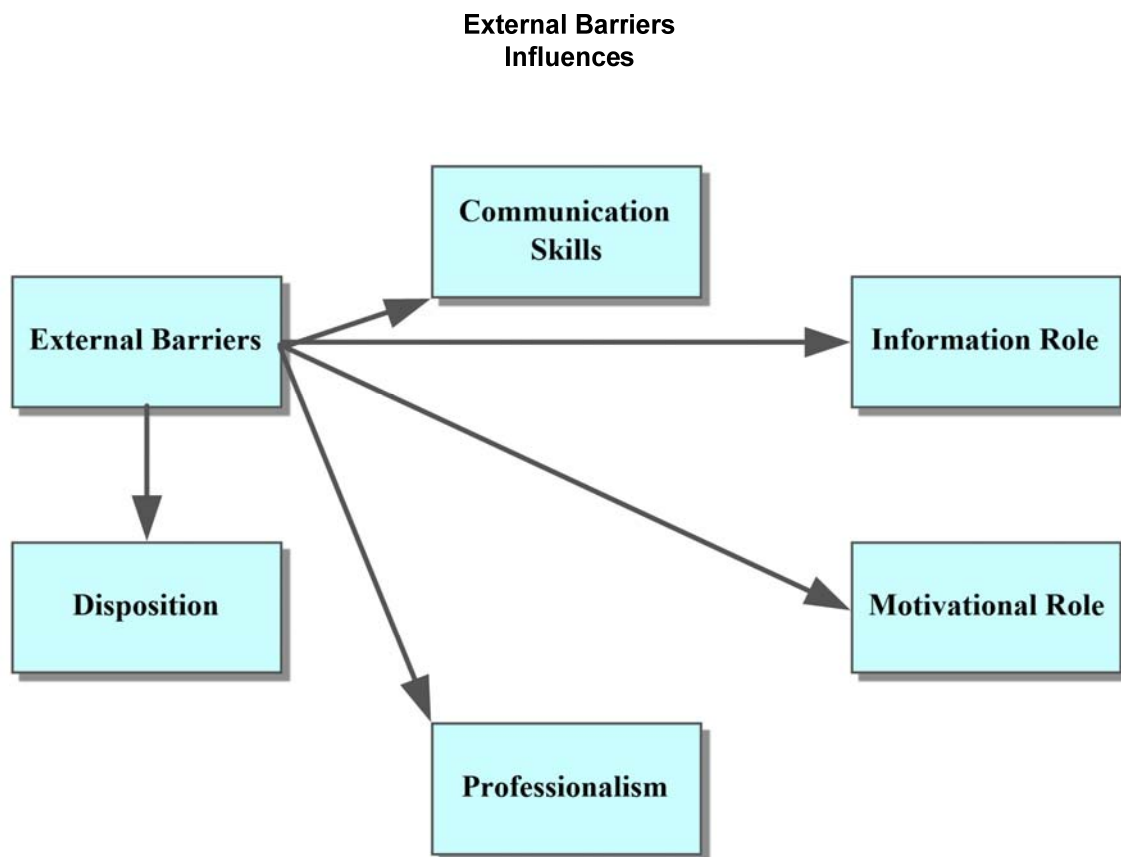


Figure 4.7: The affinities influenced by External Barriers

4.6.1.1 External Barriers influence Disposition

There are several examples of *External Barriers* over which the pharmacist has no control that may have a negative effect on the *Disposition* of the pharmacist.

Working environment

"A large workload and unavailability of medication can spoil the attitude between pharmacist and patient through, for example, the impatience of the pharmacist because of work pressure and helplessness about medicine that is not available. A high pressure environment where the pharmacist feels pressurized, misunderstood and frustrated will cause the pharmacist to perform merely the basics and make little effort to be friendly, take their time and ensure the patient understands everything. If you are working under pressure and cannot convey information you get bored and frustrated and this makes pharmacists negative about their profession and they lose knowledge and then at some point they do not do very much to remain informed about new techniques and information. External barriers may prevent a conducive atmosphere/set of circumstances that enable effective communication, thus influencing disposition, as opposed to intrinsic knowledge or professionalism per se. Pharmacists in SA work in a negative environment which influences our attitudes and behaviours on a daily basis (we must be the most negative profession I've come across). The wilful decision remains with each pharmacist to cultivate a positive attitude from factors determined by pharmacy practice. This is dependent on the type of external barrier and how one perceives the barrier".

Patients

"To then remain friendly towards the patient if he gets rude with you about something that you have no control over. So, a rude customer is usually treated differently even though one keeps the professionalism in terms of providing the necessary information. Then you can motivate like you wish, but if he does not have the money he does not have the money. A pharmacist in an economically depressed area may be less motivated to counsel patients when their accounts are unpaid."

Public sector

"In the civil service pharmacists get demotivated very quickly because a shortage of resources, they become negative, and do not have a desire to help patients in primitive circumstances where there are no consultation facilities."

Medical Schemes

"And then the courier pharmacies came in and then they took away my chronic medications. I am very negative about that. On many days, external barriers like medical aids causing us to wait on hold for ages, and then not sorting out the problem, causes huge attitude problems. We realize that it is not the patients fault, but we are cross, they are cross for having to wait. It is not motivating

to do your work to the best of your ability, if you cannot offer the patient the best product/treatment as a result of the external sources, such as medical funds and corporate pharmacies.”

4.6.1.2 External Barriers influence Communication Skills

External Barriers can cause so much tension that the pharmacist may struggle to maintain the appropriate communication skills and to remain calm

Language

“Language is a good example. It would be easier for a patient to receive info in his/her mother tongue, but a pharmacist can only speak one or two languages. The only external barrier I can think of that can affect communication is a language barrier, i.e. when the consumer prefers a language I cannot speak. However good one is with communication skills, some barriers like language could hinder the whole process.”

Corporate pharmacies

“If you work for a large group as a pharmacist and must do a high volume of prescriptions at a certain profit, one cannot do it. There is no time to really consult. I bought something from a branch of large pharmacy group recently. The pharmacist assistant Post-Basic was petrified to engage in any form of communication as the “stats” will look bad and then she is in trouble!

Time and workload

The greatest external barrier is time. The amount of information that can be conveyed to each and every patient is constrained by this. It's difficult to remain cool and collected when a patient wants your experience and advice but is not prepared to pay for it.”

4.6.1.3 External Barriers influence Professionalism

External Barriers that are out of the control of the pharmacist such as “out of stock” may present the pharmacist as nonprofessional as the pharmacist cannot provide medication to the patient.

Availability of medicine

“The external obstacles might influence you professionally precise as a result of an “out of stock” situation, which affects you negatively and later on you do not know what to tell patients. The day when there is no stock, you might not be as professional as you should be. Even though a pharmacist tries to be super professional, and there is no medication on his shelves, what can he do? He can try to explain to the patient. “I do not have medicines on my shelf”, but I do not know

if the patient is really going to understand that. They are after all coming to a pharmacy to pick up their medicine”.

Patients

“The way pharmacists are conducting themselves is hugely influenced by patients. Patients make unfair demands to the pharmacist e.g. requesting scheduled medication without a prescription. You get impatient, rude, demanding patients. The way in which you approach them from the beginning might have an influence on the pharmacist’s professionalism. Now the client is already standing in front of you, and he says: “now listen”, and then he did not have a co-payment the previous month, but why does he have one now? If the doctor puts repeats on the script for six months, then they might think that the thing is now automatically on chronic, but this is not the case. Now you are standing there and the patient does not want to understand.”

Corporate pharmacies

“Corporate groups “force” pharmacists to give out certain products that simply favour the company. Pharmacists are penalized when they do not make certain “targets”. For example, in Corporate Group C you are only allowed to give out their “brand”. Corporate rules may put certain limits on how far one can engage with a client. Time constraints and long queues may be detrimental to the full understanding and resolution of a problem. Corporate retail pharmacy is about the numbers and hence queues and tremendous pressure which hinders the pharmacist from going the extra mile in checking data and informing patients and doctors vis a vis dose and side effects. The professional behaviour is often linked to sufficient time to spend with the patient.”

National Department of Health (Legislation)

“The squeeze in dispensing fee as applied by NDoH is limiting my professional freedom in dealing with clients as time and turnover become priorities. That will influence the professionalism of the pharmacists, and the image that they project, but the professionalism of pharmacists, the more professional it is, it might indirectly influence the government to give the pharmacists a greater scope of practice and to allow more. The laws governing pharmacists are a barrier to maximizing the potential of pharmacist to play a more direct role in the health care of the patient, e.g. limits to schedules access medicine scheduling allowing only for doctor to prescribe. Ownership not limited to the profession or pharmacists legally allows big corporate organizations to allow non-pharmacist's to dictate to professional pharmacist's how to deal with customers. Professionalism can be limited or promoted by legislation and ethical norms, among other influences, such as commercial and economic considerations.”

Public sector

"In the public service the pharmacist's professionalism is limited because the pharmacy manager reports to the clinical manager, a doctor, often with a limited overseas qualification. In the hospital there are many different persons who work with prescriptions, and the inputs of each have an effect on the pharmacist. As a pharmacist in the National Department of Health, the shortage of medicine and the total dependence of state patients can influence your professionalism through, for example, dispensing a product that might have expired a month ago. Working within a big framework e.g. Department of Health, or a large retail chain that never seems to have enough staff, the professionalism of the individual pharmacist can be hampered by conditions such as the standard of facilities, budget available for staff."

Medical Schemes

"As a pharmacist working in a private sector, I see the funders or medical scheme rules making it a bit difficult to monitor adherence of my clients. The so-called designated service providers are taking over the role of dispensing chronic medications. In retail pharmacy, dealing with the medical aids is not actually a pharmacist's function as per what he/she studied for, but is an external barrier that the pharmacist must deal with on order to ensure payment. Medical Aid decision too for example, generic substitution is explained by the pharmacist but the final decision is made by the patient, the least informed party compared to the pharmacist and the medical aid. External barriers such as medical aids, DOH pricing structures. These put pharmacists in a bad light in terms of remunerations of a pharmacist. Pharmacists "professional fees" should not be based on pricing, and hence should not be discounted. Dealing with poverty, medical aid restrictions, inability of members of the public to understand their conditions and financial constraints are uncontrollable external barriers that do influence professionalism."

Working environment

Busy pharmacy, time constraints, lack of support personnel, uncooperative patients directly influence professionalism.

Staff

Factors that influence the extent to which you can optimize the professional behaviour is the quality and availability of professional staff.

Doctor

You can be furious because the doctor dispenses, but the doctor ought not to really influence your professionalism.”

4.6.1.4 External Barriers influence the Information Role

Depending on which *external barrier*, it can either cause the pharmacist to not have enough time to give information or it can be positive so that the pharmacist now does have the opportunity to provide *information*

Doctor

“Information is not always verbally given to a patient, information can also be given through pamphlets and posters, and this can be limited if there are not sufficient resources to supply you with this measures. The doctor’s opinion on certain medication and generic medication and the doctor’s communication to the patient will influence the patients view on medication. That will influence the information the pharmacist provide, especially if it differs from the doctor.”

Patients

“In many cases the patient is himself the negative external factor, because he/she is not interested in hearing the facts. So, it would be awkward for me being a “young” female to provide information about sexually transmitted diseases to say an elderly male - say from the Islam religion. Getting information across to the patient is influenced by language & levels of communication. The pharmacist needs to adapt his role according to each patient’s needs & level of understanding - e.g. the importance of taking chronic meds regularly. Language barriers beyond your control will influence the way you communicate information to the patient. You cannot give information accurately if you do not understand the patient’s language and the patient doesn’t understand you. The inability of one to communicate with a patient, be it with differences in language or inability to hear, deters from giving information. “

Workload: Time

“One of the biggest external barriers is the lack of time to spend on each patient. This limits the information role. If time is limited, you cannot communicate the information as you should, you cannot listen for a long time, and give feedback. A pharmacist spends too little time, so you cannot convey information as you should about side-effects and instructions for us, and you sometimes assume that the patient knows or understands the brief medicine label. Once again a large workload (external barrier) might cause the information role not to be properly played.”

Availability of medicine

"The external barriers do have an influence on the information role. External barriers should really only be able to improve your information role. There is no medicine, so you can only tell the person "we do not get it", "can I offer you something different", or "we can call the doctor."

Public sector

"These may include physical circumstances as well as a lack of knowledge by the pharmacists (not only clinical, but also in a funding environment around funding rules). Working in a government hospital, hands are tied, no funding to help you improve and update your knowledge. They not really realize what the level of knowledge of us pharmacists is, and we do not use it there anymore, so we decline. So I also do not want him to ask me a question, because I cannot remember any more. Non-Pharmacist's (assistants) are allowed to communicate information to the patient. The information role is part of the practice of a pharmacist, so if external barriers determine the practice beyond control it will influence the degree to which you fulfil your information role as a pharmacist. The information may be modified according to circumstance but not beyond professionalism of pharmacist."

Working environment

"The environment in which the pharmacist must perform the information role can have a direct influence on how much information is received, e.g. noise levels, privacy for confidentiality and ease of patient, direct contact for demonstration of medication or time and queues in corporate pharmacy. A separate area where there is no separate private area affects patients counselling sessions."

4.6.1.5 External Barriers influence the Motivational Role

External Barriers may cause the pharmacist to become negative in his/her Motivational Role and then transfer the negativity to the patient.

Availability of medicine

"External factors that has a negative effect on providing adequate health care has negative impact on one's motivational role. Motivation must be supported through the infrastructure to complete the desired outcome. For example, if the correct medicine is not available at the right time at the right place, as a result of external factors, then a pharmacist's motivation will not help at all. How are you going to motivate the patient to keep on using his medication if you cannot find it

anywhere? To now understand the patient, or get him to adhere, or telling him that he must now take a different medication, which he does not normally take is difficult."

Language

External factors will usually impact on the motivational role, how much time the pharmacist can spend counselling, for example, or even whether the pharmacist understands the patient and vice versa. Language barrier as an example can enhance your motivation as a pharmacist if the patient can hear and understand you whereas if you can't speak the patient's language it'll negatively affect motivation.

Management of the pharmacy

If you do not have the time to speak to your patient, how are you going to motivate him? Then we have a time barrier, imposed by a shortage of staff. Given that part of a pharmacist's motivational role involves patient counselling, this is often greatly affected by the pressure of customers. A pharmacy affected by adverse economic conditions would be less likely to counsel and motivate patients because they have other factors on their minds. There are always "belt-tightening" campaigns. As a pharmacist you would like to have the best equipment and technology available in a pharmacy. External barriers such as time, workload will influence the actions you undertake to spend motivating the patient. "

Patient

"The patient can be an external barrier by not expecting the motivational role the pharmacist wants to fulfil. An external barrier, like patient-non-compliance in taking chronic medicine as prescribed and then having the patient suffer dire consequences, like a stroke if anti-hypertensive medication is not taken regularly, would motivate an ethical professional Pharmacist. Some external barriers may be beyond the scope of the pharmacist to resolve. This may therefore make it difficult for pharmacist to motivate patient to adhere to treatment for example, a patient who has financial constraints. The patient considers only the monetary aspect of the interaction and not the added value. If the motivational role is seen as the practical implementation of effective counselling, rather than the desire to and commitment to engage in professional behaviour, then a direct influence may be demonstrable. If unable to practice efficiently as pharmacist with barriers to prescribing best medicines effectively then it will be difficult to get complete adherence to therapies. The patient then sees multiple health professionals which can impact negatively on therapy."

Corporate pharmacies

“External barriers such as corporate pharmacies, for example, motivate me as community pharmacist to give even more emphasis to my professional actions towards patients to show that I really care and do not only see him as a number such as is done by Corporate Pharmacy Group D. A financial reason – moving from quality to quantity and loss of personal communication and motivation, as well as the change where patients no longer have personal relationships with pharmacies in the mega-pharmacies. Regretfully external factors such as corporate and medical aids create a conflict situation. Then you are negative. I mean, you do not want to do things, and then still go and help Uncle Piet in the evening when he does not want to take his pills. Then you are not very motivated.”

Working environment

“External barriers can lead to disillusionment, lack of motivation, lack of professionalism & hence lack of motivational undertakings towards patient. External barriers can (de)motivate a pharmacist which can be carried through to how the pharmacist motivates his/her patient. If you are regularly bombarded with barriers you are not going to be very motivated to play a motivational role ... it will only demotivate you to play that motivational role. External factors can have a positive or negative effect on personnel about how important it is/how motivated you are to motivate your patients. “Ideal” working conditions make it easier for you to be positive and to motivate your patients.”

In the following section the influence of Disposition on other affinities will be presented.

4.6.2 Disposition

The affinities influenced by Disposition are shown in Figure 4.8

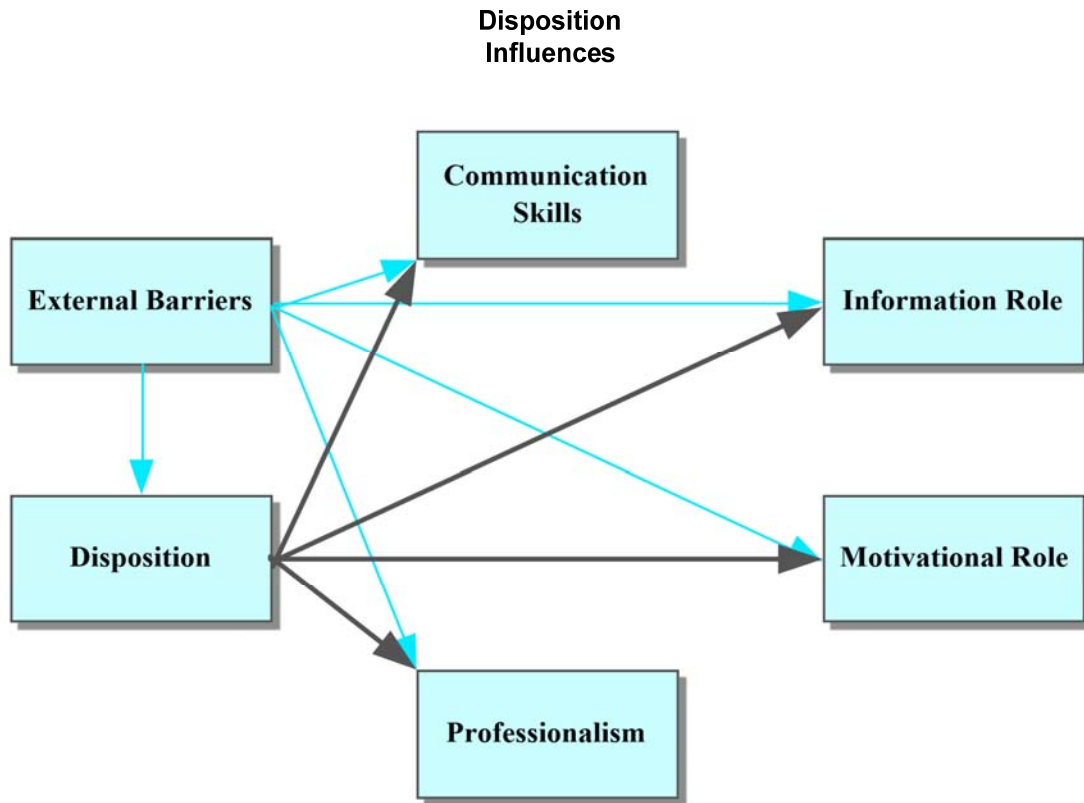


Figure 4.8: The affinities influenced by Disposition

(The blue arrows in the background show the directions between the previous affinities that have been discussed and the black arrows indicate the relationship between Disposition and the other affinities. The meaning of Disposition: The pharmacist's attitude within his relationship with his patients).

4.6.2.1 Disposition influences Communication Skills

The *Disposition* of the pharmacist towards the patient will have an impact on their *communication* as well as the *Communication Skills* applied to transfer information.

Positive Disposition

"If the pharmacist has a positive, friendly attitude and is not prejudiced, he/she will be able to communicate better and the patient will have more confidence to ask questions should he/she not understand. If the attitude is positive, solutions for communication problems will be sought and the pharmacist will make a plan to communicate with the patient. If your attitude is negative, you will not try to help him overcome his problems. If you want to communicate, even if it's not your forte if you have the right disposition you will find a way to get your message across. A positive attitude might motivate a pharmacist to increase and work on their communication skills.

A person's attitude determines the outcome of the action, be it positive or negative. A positive attitude forms an integral part in instilling a positive change or influence in a person or a group of people. Positive people also communicate more effectively and convey knowledge better than negative people. Their inputs are also more readily elicited because the perception exists that they can be approached more easily. Somebody who talks a lot but only focuses on the negative and the sad things, however much he talks, will not help a lot."

Negative Disposition

"In cases where communication is difficult a pharmacist with a negative or indifferent disposition will not make the effort to attempt communication via other means, e.g. pictograms or spend the extra time ensuring the patient understands. If your attitude is negatively towards your patient you will not be able to communicate properly to your patient - you might communicate in a rude way to your patient if you believe the patient have been rude to you."

"If you are not in the right state of mind-set then there is no sense in trying to convey a positive message in trying to persuade an audience or patient. If your disposition is not correct for the day may influence the way you communicate to the patient. If the pharmacist do not want to work with patients, communication will not exist."

Relationship

"Your disposition is either one that allows effective communication or one that doesn't. The attitude or relationship the pharmacist chooses with his patient enhances the ability to communicate. Your disposition affects the patient's willingness to listen to you. Attitude always takes precedence before communicating. Attitude is as important as it affects everything a pharmacist does regards behaviour and communication. A poor relationship with a patient will lead to poor communication as either party may not be interested in the information being presented by the other and therefore communication is unsuccessful."

4.6.2.2 Disposition influences Professionalism

A pharmacist with a negative *Disposition* will find it nearly impossible to act positively and thus professionally

Respect

"In dealing with people one's disposition is extremely important. They are respectful of you as a professional, but there is a fine line between simply being highly intelligent and knowing all the facts and being able to communicate to them. The way in which a pharmacist relates to the patient

should reflect his/her profession - to share/receive information with compassion & understanding. All patients need to be treated with respect and this should not be reserved for those whom we deem to be worthy of a professional service. A poor disposition will lead to unprofessional service. If you are biased towards your patient it will definitely influence your professionalism. If you have the perception that everybody that are HIV+ deserved it because they are bad people, you would treat them as such, and you might not be so professional. A pharmacist with a positive disposition exacts respect and reassures patients."

Disposition's impact on Professionalism

"If you are interested in your profession and in your patients the better your disposition and hence the more professional you are. If you have a high degree of an ethical professional attitude you will practice in a professional and best practice way. In life, your attitude to anything will influence your actions. Therefore, one's attitude about being a pharmacist, will influence whether you behave appropriately as a professional pharmacist. Negative image and or body language can negatively impact on the professional image created. This ensures that patients will return to the specific pharmacist. Attitude or disposition is the mirror of what is going on in the life of a person. Everybody faces challenges. Your disposition determines whether in your personal and professional life you will achieve success in spite of all the rocks in the road. If a pharmacist should have an "I-don't-care" attitude towards Pharmacy and is merely a pharmacist to put money in his / her till he / she could easily succumb to illegal temptations. Therefore, one's attitude about being a pharmacist, will influence whether you behave appropriately as a professional pharmacist. The attitude that you apply to help every patient to the best of your abilities by providing the best possible information or the best possible price or to walk the extra mile support your professional image what you have in in your pharmacy. I would not like to associate my attitude to anything else than a spontaneous out of the heart feeling. I am not that person that will do something just to look professional."

Natural Disposition

"Disposition is hard to "fake". While many pharmacists, particularly those working in a retail environment are able to project a certain demeanour, it is difficult to continuously play a part if it is not a natural disposition. If a pharmacist has a poor/bad disposition, their attitude to a patient is negatively impacted and therefor their professionalism is negatively influenced. Pharmacists who rant to entities on the phone in front of a patient and then turn on the charm to help the patient or don't and remain unpleasant are more likely to be considered unprofessional. If the disposition of a pharmacy professional is negative it will influence his/her total professional role and it will lead to a professional culture of "what is in it for me", instead of putting the patient first. If your

attitude is wrong (rude, bossy, prideful) it might make you inaccessible to your patients, which can again affect communication which can lead to sub-standard service, thus unprofessional service. My problems I am leaving at home. And I know all these other things that make me negative about the pharmaceutical profession will not influence my dealings with my client. So I try to leave my problems at home. ”

4.6.2.3 Disposition influences Informational Role

A pharmacist with a *positive disposition* towards the patient would put in a greater effort to transfer the correct *information* in an effective manner.

Negative attitude

“If a pharmacist has a bad attitude it will influence how he relates information. Your attitude has an influence on your information role, because if now you do not feel like talking to this patient, or your attitude is negative, then you are not going to give him the right information in an effective manner. If a pharmacist has a negative attitude towards a patient, the pharmacist will not necessarily convey all the information that he should, because the pharmacist might just want to get rid of the patient. If you have a good attitude and you want to help the patient, then you will automatically convey more information.”

Passion

“As soon as you have a passion you will try all the time to keep your knowledge as part of your professionalism up to date. Your attitude will determine how readily one is willing to change, to grow and to gather new knowledge. Should you be of the opinion that what you learned ten years ago about how medicines work or how things are done in practice, then you will have petrified knowledge.”

Positive attitude

“When you have a positive attitude, an uninformed person will rather trust you and will open up more through asking questions from you. Patients should be able to trust you because you are talking to them and not over their heads. A positive attitude towards the patient will determine whether he is going to listen what you are trying to convey. A caring pharmacist will instinctively provide the relevant information that the patient requires to get a desirable therapeutic outcome. If your attitude is to treat the patient as a whole, and to be interested in his circumstances, and to explain how he should use medication, then the information role will come across well. Then the pharmacist will fulfil that role.”

Personal attitude

“My attitude determines whether the functional knowledge that I am trying to convey will be accepted by the patient or not. Any communication conveyed in a professional, clear, friendly manner will be more readily received than if conveyed with a negative attitude. It would be better if the information role could determine attitude, but we are not robots. A negative attitude from the pharmacist will make the patient resistant to absorbing any information given.”

Relationship

“The stronger the relationship the pharmacist has with the patient, the more likely that more information will be imparted to the patient during counselling. The patient will be more willing to listen to you as pharmacist if he/she feels that they can relate to you and if you show them that you know what you are talking about.”

4.6.2.4 Disposition influences the Motivational Role

To be able to *motivate* the patient, the pharmacist him/herself needs to be motivated and to have a *positive Disposition*

Positive attitude

“Attitude has an influence on the motivational role. Do you include it in your role as a pharmacist or what you think you ought to do or do you think that you only have to put prescriptions through computers? To gather the levy and to give the pills or is it to be involved and doing a little bit more by asking a patient how he feels and encouraging him? I have now seen a lot of people not focussing on the negative, and what the results are. But do you have a way in which you can rather elicit the positive – what can the outcomes be? If you identify the patient, and see when he does not comply or adhere, you can perhaps follow the results of effects route. If you see that he is giving his co-operation, then you can give the positive part. It is “see what happens if you do this or that”. Patients trust the pharmacist and they will believe him if he motivates them to take their medicine. Since working closely with ARV patients and having to explain to patients how to use their medication correctly, I have increased the awareness of my motivational role.”

Attitude determines everything

“Seeing that your attitude actually determines practically everything about you professionalism, this is no exception. People rather follow somebody with a convincing and positive attitude. A pharmacist who has a caring attitude and places patient's wellbeing ahead of profit will always

strive to take necessary actions to help patients adhere to therapy. However, a pharmacist whose sole motive is profitability will often appear cold."

Relationship

"Cheerful and energetic people will motivate me more than slow and boring people. A positive attitude and a good personal relationship directly influences on the outcome of the motivational role. First and foremost is to gain the trust of the patients so that one would understand the reasons for non-compliance and can be addressed according. If you assume a positive attitude about the correct use of medication and concomitantly the healing and maintenance of a condition and be able to convey this a person, then you will motivate him/her to do this, seeing that this is to his/her advantage. The attitude of caring and willingness to see patients benefit from taking their medication automatically propels us to the motivational role. Patients will resist actions if your attitude towards them is not good. It is a natural reaction. A negative disposition towards a patient will definitely not motivate the patient to adhere to any regimen. If you do not have a healthy attitude towards your patient, you will not be motivated to help your patient adhere to his/her medication. A pharmacist with a negative or indifferent disposition to his/her patients will not make an effort to motivate compliance beyond the basics."

In the next section the influence of Communication Skills on the other affinities will be described in the interviewees' own words.

4.6.3 Communication skills

The affinities influenced by Communication skills are shown in Figure 4.9

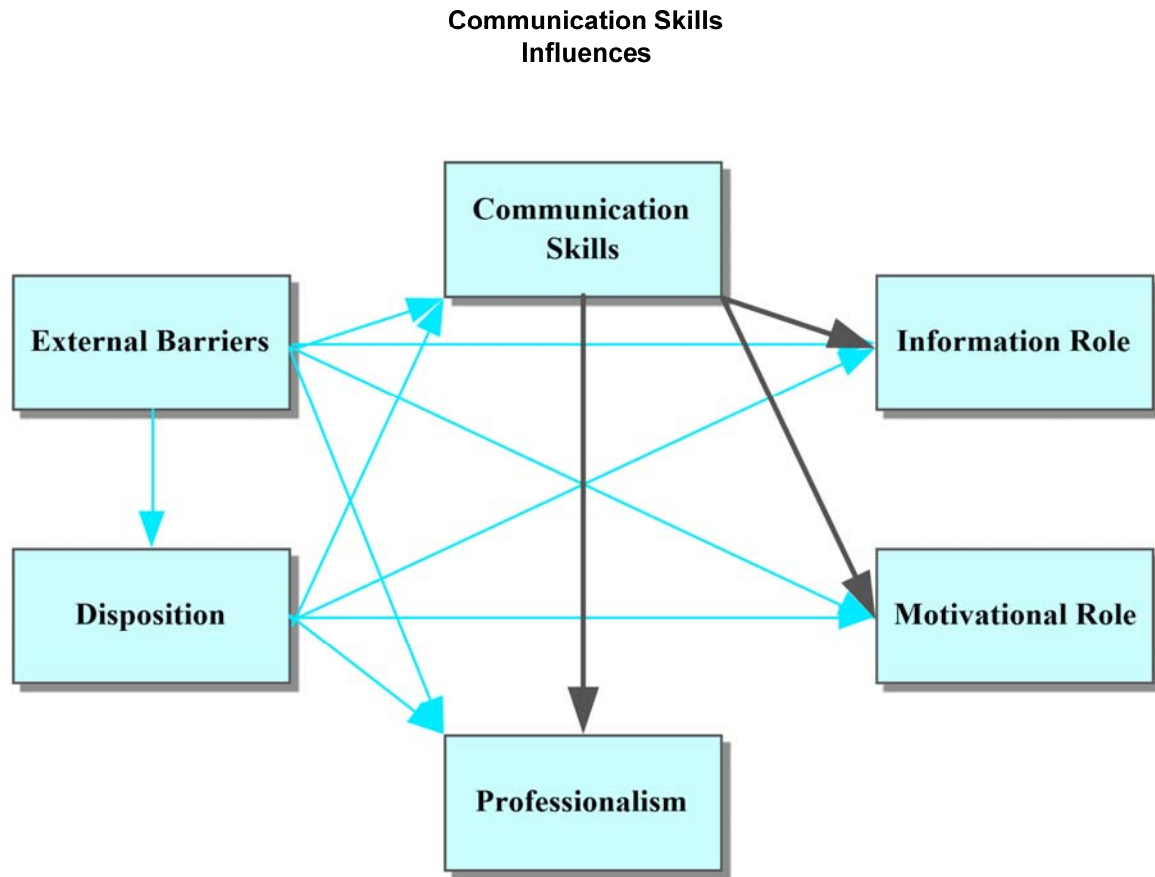


Figure 4.9: The affinities influenced by Communication Skills

4.6.3.1 Communication skills influence Professionalism

Good *communication skills* or the ability to communicate well, will always be seen as a virtue of a *professional person*

Listening

"Listening is very important, because then people are going to experience you as being professional. It is important to listen to and draw underlying detail from the patient who has a problem before the pharmacist can come to any conclusion. Healthcare working mainly with patients, interacting with patients, necessary to develop communication skills to allow fruitful interaction. If one cannot communicate/ listen, one can feel frustrated easily and lose patience, loose patient also."

Language

"If one is not able to explain or talk to a patient in a language understood by him, there is an immediate barrier which could result in a misunderstanding of medication usage. Communication between patient and professional is very different than communication between professionals. We need to understand that many patients or the population we serve does not understand our fancy medical terms. Depending on how well patient and pharmacist can communicate, too many different languages in this country may make it difficult to converse in patient's home language, which is best for the patient understanding advice that pharmacist wants to give. Effective communication is necessary to ensure a professional relationship. This could be a barrier in that if there is a language barrier the perception of the pharmacist would be considered unprofessional by the patient. It is of utmost importance that pharmacists have or learn the communication skills which are necessary to convey complete and accurate information to a patient which is understandable and acceptable to his/ her culture."

Level of communication

"If you as a pharmacist cannot relate to a patient and communicate at a level which makes the patient comfortable then you have already lost the chance to make a difference. To get buy in from the patient you must flatten all barriers to communication. A professional delivering healthcare must have the required communication skills to meaningfully communicate with patients, especially in South Africa where the patient is a member of the diverse population. Communication skills are taught from a young age, whereas studying and training to be a pharmacist is something which is done later in life. While communication skills can be improved through various means, they are more core to a person's nature."

Professionally skilled

"The more professionally skilled the pharmacist is, the better his professional appearance and behaviour will be. Professionalism includes being able to communicate appropriately and inadequacies in communications lessens the overall professionalism image of a pharmacist. Two pharmacists dressed identically but with a different personality and approach could have a very different effect on a patient and their adherence."

Share experience

"To be able to understand and communicate, you need to have the willingness to share not only knowledge but experience and it will add to your professional behaviour. It can build a bridge or a wall between you and your patient/client."

Communication skills

“Communication is the biggest single factor influencing the pharmacist’s professional skills as it is in communicating with the patient that he/she realizes the importance of adhering to the advice given. Without communication skills all your aspirations of being a professional pharmacist can be misinterpreted or totally lost. How you are perceived depends to a large degree on your communication skills. Communication skills plays an important role in the profession as a pharmacist. The main goal of a pharmacist in any sector be it private or public is to provide the best pharmaceutical care possible to the patient in his/her care. Without your having to do something to your professionalism itself, the image that people have will improve if your communication. The way in which you communicate will give the patient a picture of how professional or otherwise you are.”

4.6.3.2 Communication skills influence the Informational Role

The pharmacist needs *communication skills* to effectively transfer *information* to the patient in all possible situations.

“One’s ability to communicate, be it verbally or through body language influences the way information is received and remembered. A label on medication saying just “As Directed” is of no help to patient and not very professional. The better the communication skills, the better information can be conveyed. Information without communication is useless. Communication skills influence your information role more, because you then have communication skills to convey it. You have the information so you just need the communication skills to convey your information.”

Better communication skills – better understanding

“No matter how much knowledge you have on a subject, if you cannot communicate effectively then the importance of the message is lost in interpretation. The better the communication skills the better the understanding of the information so learn to communicate effectively. Any information that is conveyed to the patient must be comprehensible and must be comprehensible to the patient and easily applicable.”

Own language

“If you can speak the patient’s language the more information you will give. The better you can communicate, for example to help patients in their own language, the easier it is going to be to convey your information to the patient. The pharmacist must counsel the patient in a language which is easy to understand, and take the time to do so, so that the patient fully understands the need for adherence. Your level of communication will influence the amount of information one

can share with a patient. This is an ongoing relationship and one should increase the level of communication as one builds a relationship with a patient. With that information role that you have, you must be able to communicate the message so that the patient can understand it because it is at his/her level."

Worthless information

"Bad communication skills can lead to good quality information being perceived by the patient as making up a story. You have to instil a sense of confidence with the patient to make information believable and trusted. The communication skills drive the information role. You must give the patient the information about something and if you cannot communicate well, then you will not convey that information correctly to him. If a pharmacist does not have adequate communication skills then the information he/she wishes to pass on to his/her patient will be worthless. Good communication is vital if you want to counsel a patient. If nobody understands the knowledge that you are conveying, or if the knowledge is simply absorbed and not shared, you will never be approached for help and advice, and that makes this role less effective."

4.6.3.3 Communication skills influences Motivational Role

To be able to *motivate* different patients from different backgrounds in different situations requires excellent *communication skills* from the pharmacist.

Knowledge

"Communication play an important role in motivating patients, being able to bring the message across. Knowledge how to impart the knowledge determines how the message is received. If a pharmacist is keen to motivate, but the patient does not understand, the advice is of no use. The success of the motivational role is how one passes information required to change a mind-set. An ability to communicate well will motivate to give good patient care."

Limits motivation

"If a pharmacist does not have good communication skills it can influence the way he tries to motivate patients to adhere negatively. A lack of good communication skills may limit a pharmacist's ability to motivate a patient to adhere. You might have the best intentions to motivate the patient, but when the communication lines between you and the patient are not good, you are not going to be successful. For example, if the patient interprets the message incorrectly, from within his own frame of reference. The better the pharmacists' communication skills, the better the message gets across to the "user" and therefore the more likely that compliance will be achieve. Communication skills can include the use of certain techniques to carry over your

message. Somebody who communicates better with a patient, can often exert a better motivation, regardless of the message that is conveyed. People do not always remember a pharmacist because of their knowledge and skill, but for the feeling that remains. A better communicator who is able to articulate the message is more likely to motivate a person than one struggling for words. Communication skills drive the motivational role.”

Language and cultural barriers

“If you can communicate well especially across cultural boundaries you will be able to use this skill in a positive way to motivate the patient to adhere to treatment through the way you will direct or guide the patient. It is difficult to explain to a patient how and when to take medication when language is a barrier and almost impossible to then convey why it is important.”

Level of communication

“You all need to be on the same page to communicate effectively, and communication is needed to motivate. Communication at a level that will make your patient understand why you are dispensing the medication, once you see the patient doing better through the increase of adherence it will increase the motivational role as a pharmacist.”

In the next section the influences of Professionalism on other affinities will be discussed in the own words of the interviewees.

4.6.4 Professionalism

The affinities influenced by Professionalism are shown in Figure 4.10

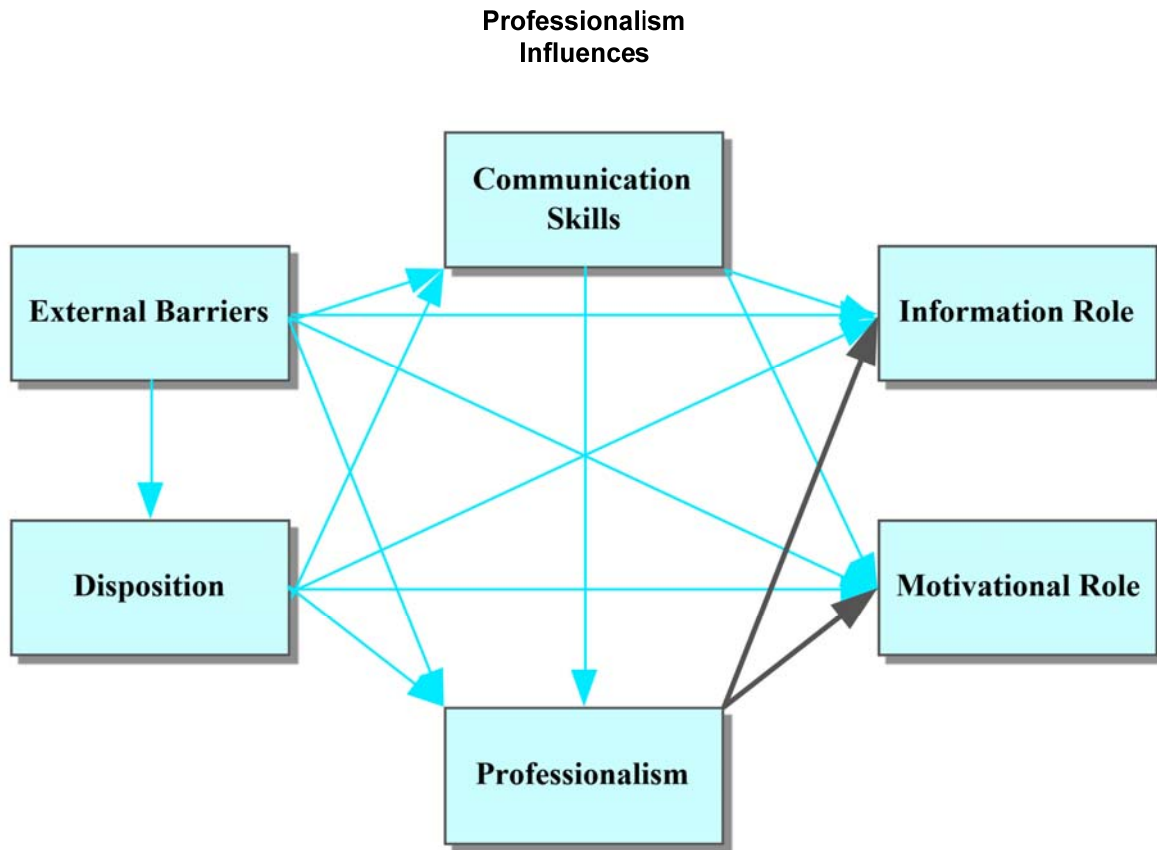


Figure 4.10: The affinities influenced by Professionalism

4.6.4.1 Professionalism influences Informational Role

The *professionalism* of the pharmacist determines his/her credibility in the eyes of the patient and will influence the patient to accept or decline the *information* provided by the pharmacist.

Community

"A professional pharmacist who is involved in his community, a healthy lifestyle with good professional knowledge will when he gives information to people develops the community's credibility and trust as it carries weight. As a professional we have to share our knowledge to uplift those we serve. To hold all the information for ourselves, will not benefit the patient. Sharing the information will increase the patient's confidence that they are receiving the right medication."

Empower

"A good pharmacist, who understands that his role as a professional is empowered with the knowledge of how medicines work and will be better able to share this knowledge with his/her

patients. Professionalism as a pharmacist means that you want to impart knowledge and give valuable information to the patient."

Core value

"If you are professional you are going to take trouble to use your pharmaceutical professionalism to give information to a person and to convey pharmacological information. Professionalism is a core value - what one believes in - thus it is major driver of your behaviours, such as sharing your knowledge to assist patients."

Up-to-date

"A professional pharmacist would deem it necessary and important to keep up-to-date with all the changes which may occur in his / her profession and with any new medicine information by reading good journals e.g. South African Pharmaceutical Journal and by Continuing Professional Development. Professionalism requires constant renewal on knowledge base as information relies on knowledge. A highly developed sense of professionalism should translate into effective gathering of information for the purposes of conveying that information to the patient e.g. a commitment to Continuous Professional Development (CPD)."

Source of information

"A pharmacist should be the source of medicine information in his work environment. To be regarded as professional, the pharmacist will ensure that all information provided are accurate and relevant. A professional pharmacist will continue his/her education and update his/her knowledge of new products - so that they can pass on this information to their patients and also interact with doctors. The pharmacist should always be abreast of the latest statistical research, for example the use of hormone replacement therapy among menopausal women. There are a great many alternative medications on the market, and the more professionally equipped you are, and the more information you have, the more you will be abreast of things and the more it will be determined how you will give your information, and how you will see to it that the patient obtains the information."

Educating the patient

"If you are proud of your profession you would want to impart as much information to the patient as they are able to understand. If you are a true professional you will ensure open and kind info regardless of how good you can communicate as the drive will be the profession and all that it has to offer the patient and not your verbal skills. The level of professionalism of a pharmacist will determine how much effort he/she puts into educating the patient and how effective they will be

in conveying this information. Professionalism influences your informational role because if they do not see you as a professional person, they are not going to consider your information as being of value.”

4.6.4.2 Professionalism influences the Motivational Role

A pharmacist who acts with *professionalism* would be more credible in his/her actions to *motivate* the patient regarding medication adherence.

Motivating the patient

“Part of being professional in being the pharmacist will have the drive to motivate the patient as part of a sense of purpose. Professionalism drives the motivational role, i.e. lack of professionalism will mean that the pharmacist will not be able to motivate the patient to adhere. The more professional a pharmacist appears, the more serious the patient will take the advice given. Professionalism incorporates the motivational role so there is a compulsory commitment to patient welfare in being a professional. Professionalism influences the way we as pharmacist practice. Motivation is the way the pharmacist directs the actions of the patient. Counselling for adherence forms part of the professional practice of the pharmacist specifically as the third phase of dispensing. If you are professional in your approach, the patient will be motivated by your enthusiasm and competency. As a professional you have to motivate your patient to adhere to their medication and you cannot act professional if you don't care about the quality of life you providing your patients. Their adherence and increase in quality of life will add value. You live by example and patients get more likely motivated by a positive role model. Medication compliance can only be achieved by a professional approach.”

Way of life

“Pharmacists should not bring the profession into disrepute instead of informing good pharmacy practice. A patient will have trust in a service provided in a professional way and professional environment and this translate to care in that pharmacy. Should your way of life be professionalism of the pharmaceutical profession, then the motivational role will come about automatically.”

Professional actions

“It is the duty to advice and inform the patient on the correct use of medication. For example, if the patient poorly understands instructions on labels of medication, the pharmacist will go out of his way to ensure that the patient understands the instruction. If you are a person with a good work ethic and proud of your profession, it will stand out in everything you do, including the way

you do patient counselling each and every time you dispense a script. If you don't appear and act in a professional manner then the recipient of the information which you are attempting to disseminate will not be receptive. There will be no trust in that relationship. Monkey see, Monkey do. If a pharmacist does not act in a reputable manner in all spheres of life then they will be unconvincing as motivators to the patient."

Passionate

"If you as a pharmacist is passionate about the profession and professionalism, the patient should be your first priority and the motivational role should follow naturally. A pharmacist who is passionate and believes in the importance of their work will offer more motivation than one who is not passionate. The level of professionalism will definitely determine the level of the motivational role that I play. Motivation is part of the service we provide as we are there to ensure that the patient takes his/her medicines at the right time, in the correct way, for the correct period. If you are passionate about your work as a pharmacist it will be important to you that the medicine has the desired outcome and you will automatically try to instil the importance of adherence to your patient at the time of counselling."

Responsibility

"It is your professional responsibility to motivate your patient to take his/her medicine correctly and you should be able to encourage your patient to trust you. A professional pharmacist would automatically motivate and encourage a patient to take medicines correctly according to prescription or instruction because the pharmacist would have the well-being of the patient at heart. If you are professional, then you can logically motivate the patient in the right way towards medication adherence."

In the next section the influence of the Informational Role upon the other affinities will be discussed in the own words of the interviewees.

4.6.5 Information Role

The affinities influenced by Information Role are shown in Figure 4.11.

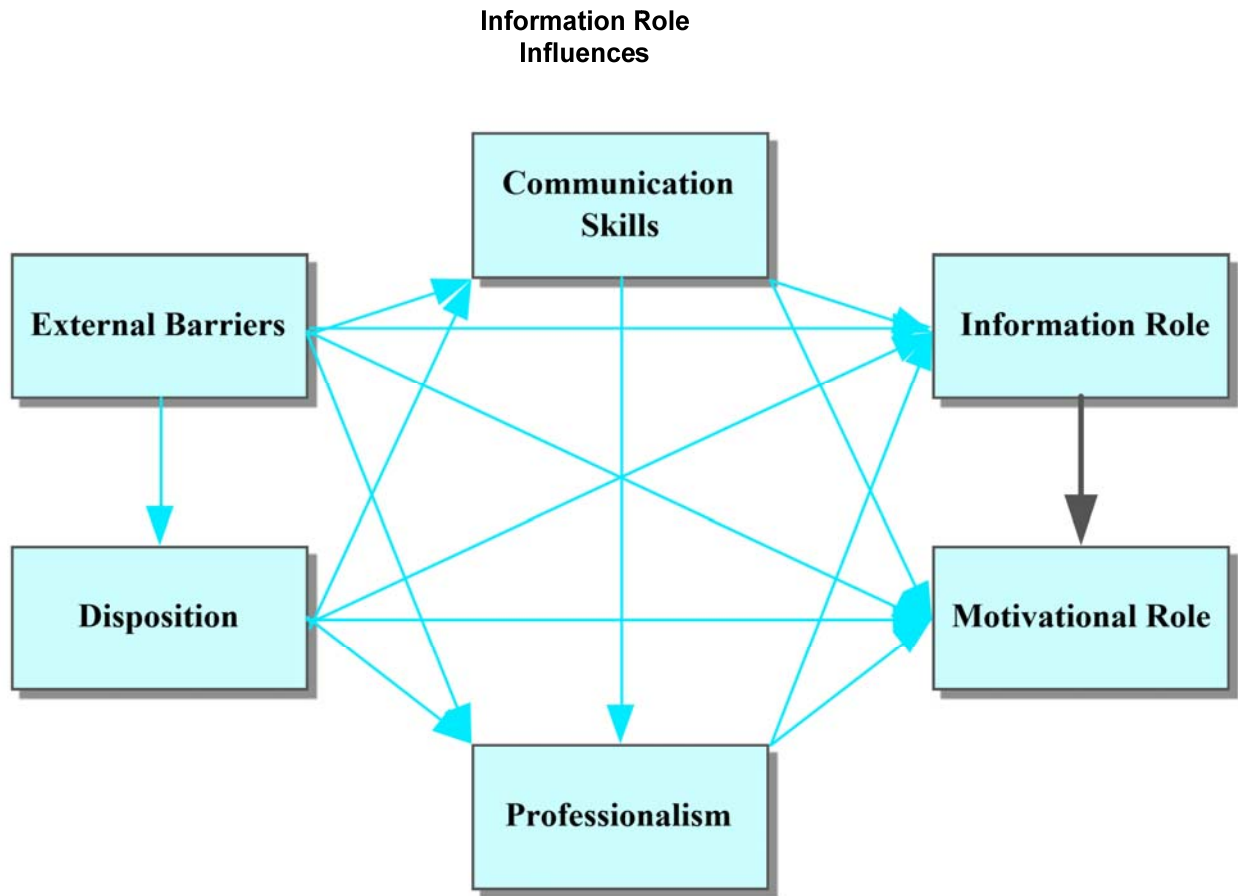


Figure 4.11: The affinities influenced by Informational Role

4.6.5.1 The Informational role influences the Motivational Role

The pharmacist needs recent and applicable *information* regarding the patients and medicine to be able to effectively *motivate* the patient to adhere to his medication regime.

Knowledge of pharmacist

“A pharmacist requires the knowledge first in order to be able to sufficiently motivate his/her patient. “Because I said so” doesn’t work and you need to be able to explain why it is important without being condescending but in terms a patient can understand. A wider knowledge of health and well-being will make it easier to convince a patient to see the doctor or complete an antibiotics course. A more informed pharmacist is more likely to take on the motivational role, i.e. knowledge is power.”

Source of information

"By doing Continuous Professional Development (CPD) courses, the pharmacist will update and improve his knowledge and this will improve his motivational role."

Comprehensive knowledge

"The better informed I am, the better the quality of the information I share with my customers and therefore, the better the chance of patient adherence to medication. Knowledge comes before any action can be undertaken. One cannot motivate adherence without knowledge of the disease and pharmacology. Comprehensive knowledge is a pre-requisite to making good decisions about how/what you will communicate. If you can give the patient information and explain to him what the end result will be, then he will be motivated more easily to be adherent."

Well-informed pharmacist

"The well-informed pharmacist is more likely to convey the message with confidence and therefore more likely to positively influence the patient. Well informed and knowledgeable pharmacists will be enabled to add value to the patients' health concerns Information is needed to motivate patients or to encourage them, sharing knowledge will go a long way in educating a patient to take responsibility about their disease and illnesses. The more valid information you share with your patient within limits (not too many rare side effects) will motivate the patient, the more you know the better it gets and the more invested you are. Your information that you are giving must not demotivate a patient to be adherent. Informing the patient that he/she might use a fungal cream until the fungus is gone, and have to keep on doing it for about a week. Through using that knowledge, you can tell the patient: "You were here first three days ago, and you have been using that cream now for three days. Just keep on using it. It will not look better now, but finish that tube and I promise you it will be much better."

4.7 The Cluttered SID

The SID Assignments protocol as discussed in Chapter 3 were used to develop the Cluttered Systems Influence Diagram (SID) that contains all the relationships as described by the interviewees and the web-based questionnaire. The detail of the method followed can be seen in Annexure C. The SID is saturated with all the relationships as can be seen in Figure 4.12 (Northcutt & McCoy, 2004:329).

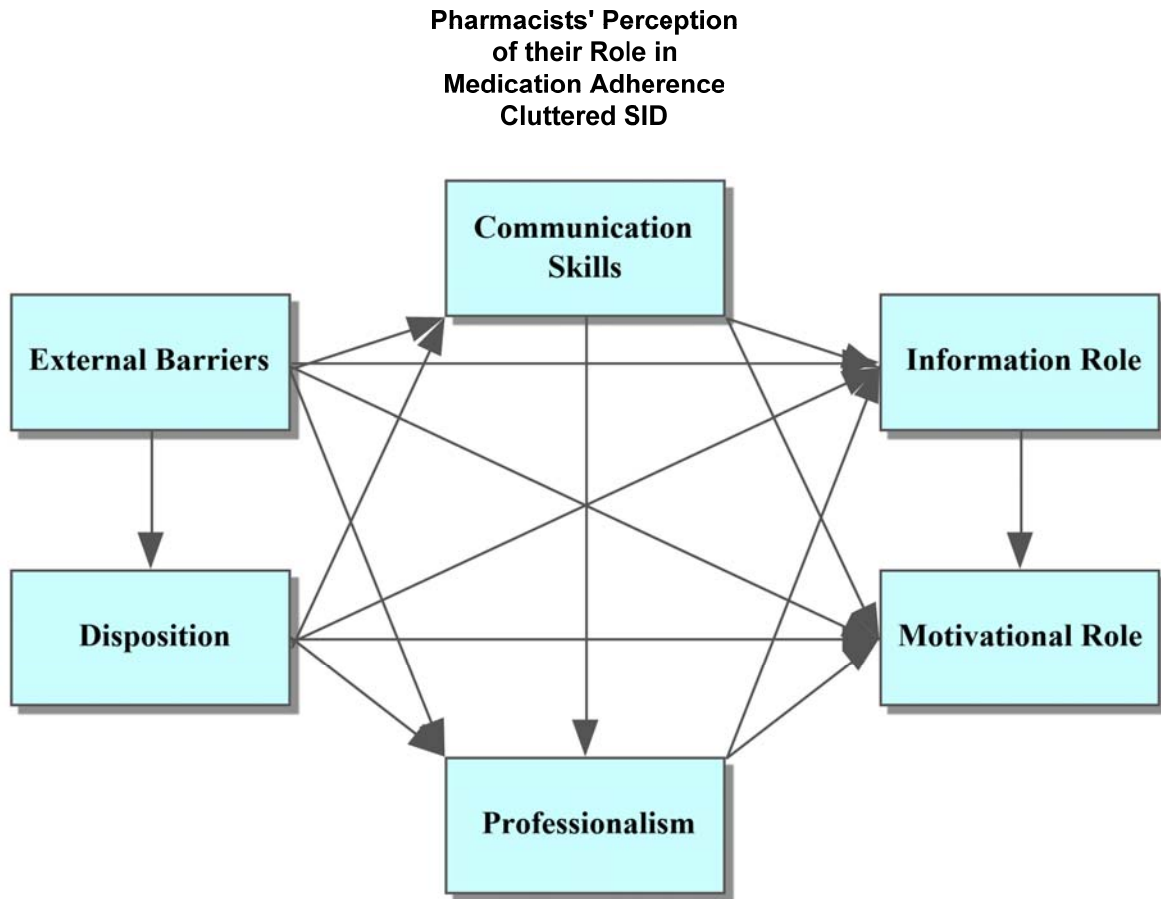


Figure 4.12: The Cluttered SID of pharmacists' perception of their role in medication adherence

4.8 The Uncluttered SID

Because of the level of saturation, the Cluttered SID is comprehensive and rich but can be very difficult to interpret. There are so many links and relationships that the system becomes nearly impossible to explain. Although comprehensiveness and richness are sought in the SID there is also a quest for parsimony.

The redundant links were removed according to the protocol and is the simplest possible representation of the system with all the relationships. The result was the Uncluttered SID as can be seen in Figure 4-13.

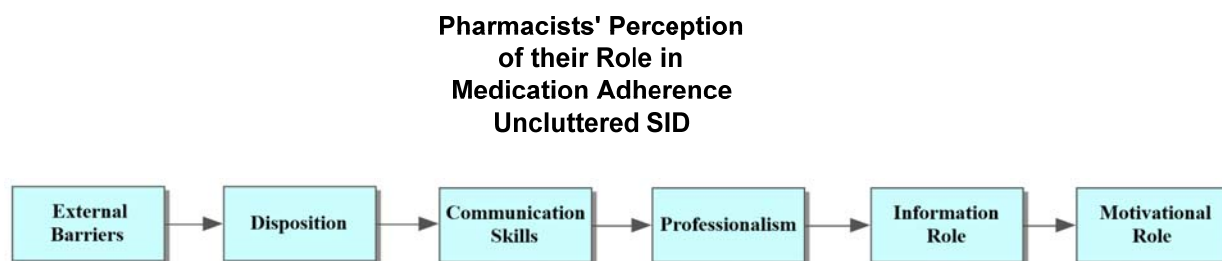


Figure 4.13: Uncluttered SID of Pharmacists' Perceptions of their Role in Medication Adherence

4.9 The conflicting relationships of the Pharmacists' Perceptions of their role in Medication adherence

In the following section the influence of the conflicting relationships are discussed in the own words of the interviewees.

The Pareto Protocol as described in Chapter 3 and the detail described in the Annexure C as well as Northcutt and McCoy (2016d) were used to provide an efficient method to reach consensus in determining the optimal number of relationships to describe the composite system.

4.9.1 Communication Skills influencing External Barriers

The *communication skills* of the pharmacist may influence the impact of the *external barriers* such as unavailability of medicine when the pharmacist explains the situation satisfactorily.

"You must have very good communication skills sometimes to be able to handle your external barriers. By using good communication skills, you are bridging so you can change someone from the way you communicate. If you cannot communicate properly, you cannot break the barriers. A pharmacist can always try and improve his communication skills to reduce possible external barriers. You can still have good communication with the patient in spite of external barriers so in spite of the fact that there is no medicine on your shelf, you still have to have good communication skills with patients. With proper communication we can make the patient understand the external factors which one has no control over."

4.9.2 Motivational Role influencing Communication skills

Because of the *motivational role* of the pharmacist, his/her *communication skills* will be influenced.

"Motivation drives all aspects of a person's work including communication. Highly motivated equals communicates well. If you are motivated to do your work right, and to do everything in

your power to help and inform the patient, you will focus on improving your own communication skills or to find alternatives to put in place and to help overcome problems. Motivation by definition should lead the pharmacist to understand his own strengths/weaknesses in communication skills and lead him to improve such to the best of his personal and professional ability. I am motivated to communicate to my patients in their own language therefore I am learning to speak Tswana to ensure that if I give directions to my patients they fully understand what I am saying as an interpreter is not always there to give the information."

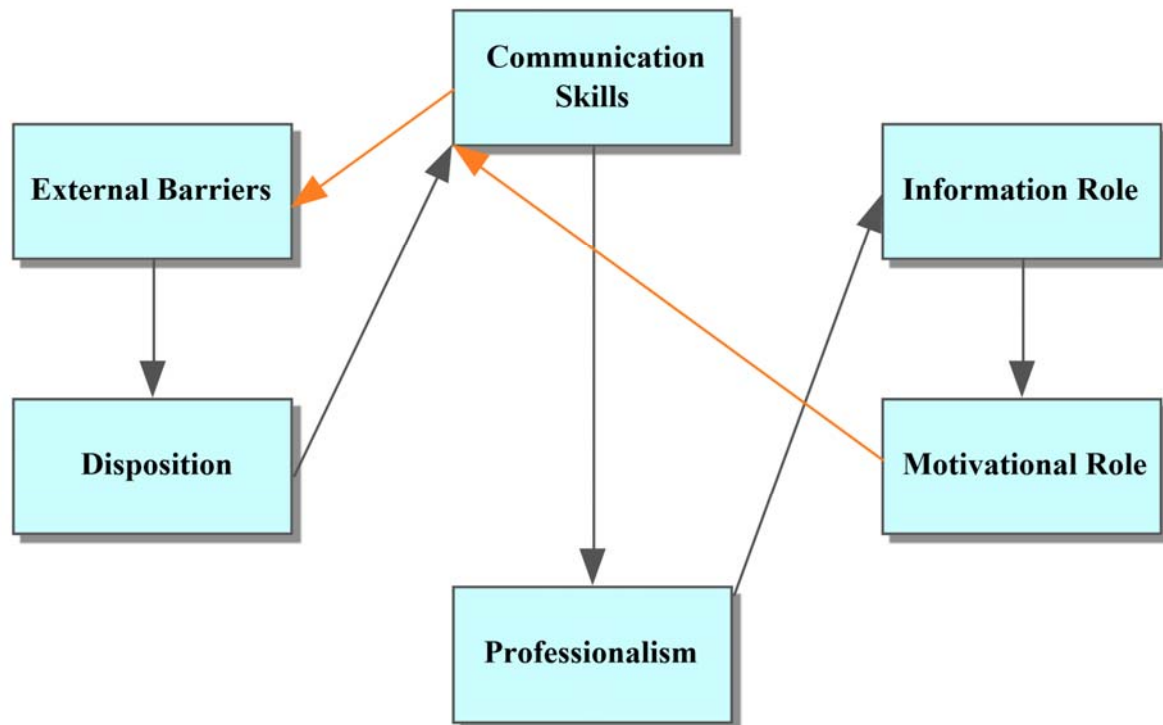


Figure 4.14: The Conflicting relationship SID of Pharmacists' Perceptions of their Role in Medication adherence

4.9.3 The final reconciled SID of Pharmacists' Perceptions of their role in Medication adherence

The final reconciled SID was built in accordance with the guidelines of maximum communication power and the end result can be seen in Figure 4.15 and this final SID was used for the discussion. Rigour was maintained as the researcher and Dr Danny McCoy as one of the authors of the book IQA (Northcutt & McCoy, 2004) used the same set of focus group data and the set of relationships identified in the Theoretical Code Frequency Table of the Individual Interviews and Web-based Questionnaires (Annexure C: Table 3.3), and produced systems representations or mind maps

that were topologically identical by adhering to the SID Assignments Protocol as the rules for rationalization regardless of the analyst's biases or the meaning of the elements (Northcutt & McCoy, 2004:338.)

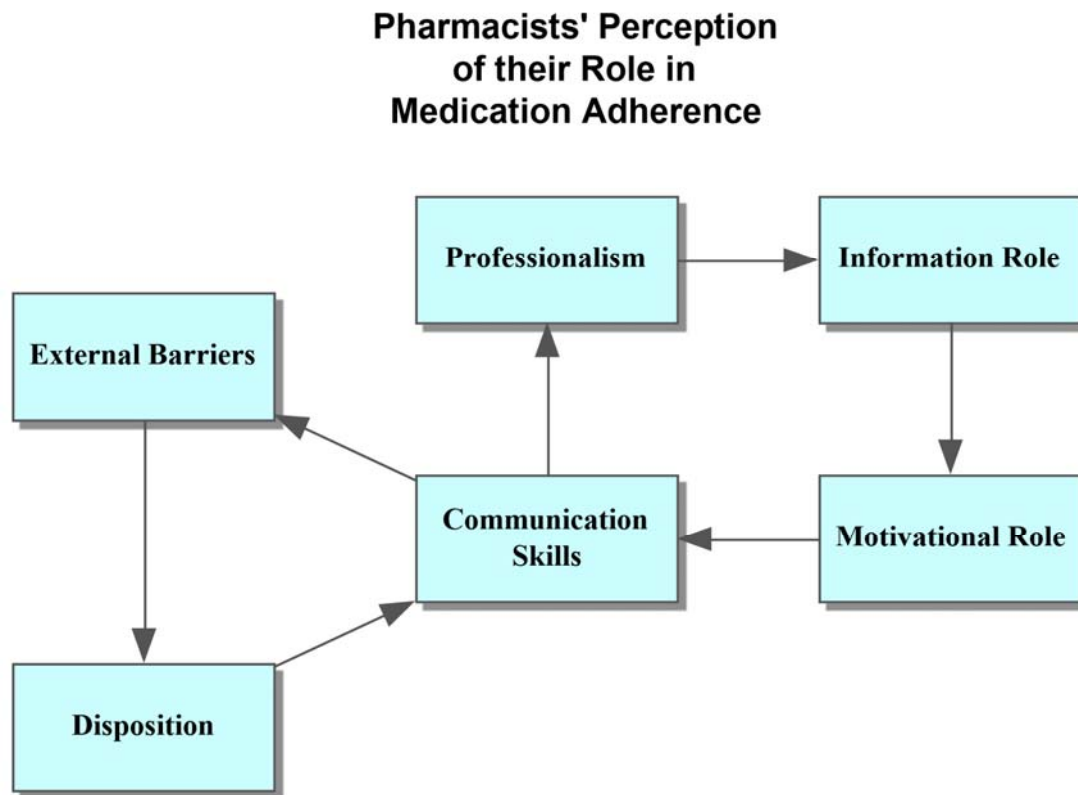


Figure 4.15: Final SID of Pharmacists' Perceptions of their role in Medication adherence

4.10 Summary and chapter conclusion

In this Chapter the first and second research questions have been answered:

- First research question: What are the affinities of the system: Pharmacists' perceptions of their role in Medication adherence?
- Second research question: What are the relationships between the affinities of the system: Pharmacists' perceptions of their role in Medication adherence?

The description of the individual affinities was presented in the first part of this chapter (see Section 4.5) and in the second part of this chapter the relationships between the affinities were presented (see Section 4.6). The affinities (Affinity Write-up) and relationships between the affinities (Theoretical Write-Up) were described by means of a narrative, containing conclusions and meanings as described in the participants' own words in order to prevent researcher bias.

CHAPTER 5: DISCUSSION AND INTERPRETATION OF THE SYSTEM: PHARMACISTS' PERCEPTION OF THEIR ROLE IN MEDICATION ADHERENCE

5.1 Introduction

In this chapter the researcher analysed and interpreted the data and drew conclusions based on data and results. Firstly a brief general description of the system named Pharmacists' Perceptions of their Role in Medication adherence and its components are interpreted. Secondly a more detailed description of each affinity and how all the affinities interact in the system is presented.

Thirdly the reader will then be taken on a tour through the system explaining the position of the elements (affinities) in the system and the nature of the relationships between them. Figures and graphs were used to visualize the system. Feedback loops are identified, named and examined during this tour and different views of the pharmacists' perceptions regarding their role in medication adherence system were examined starting from a distance followed by a close-up view.

Fourthly the model was "exercised" by presuming given states of the drivers and the resultant outcomes or assuming the state of the outcome and predicting the states of the drivers that produced the outcome. Next followed practical implications where problems were identified and solutions were provided.

Lastly Limitations, recommendations and future directions will conclude the final chapter.

5.2 General description of the system

5.2.1 The final visual representation of the system

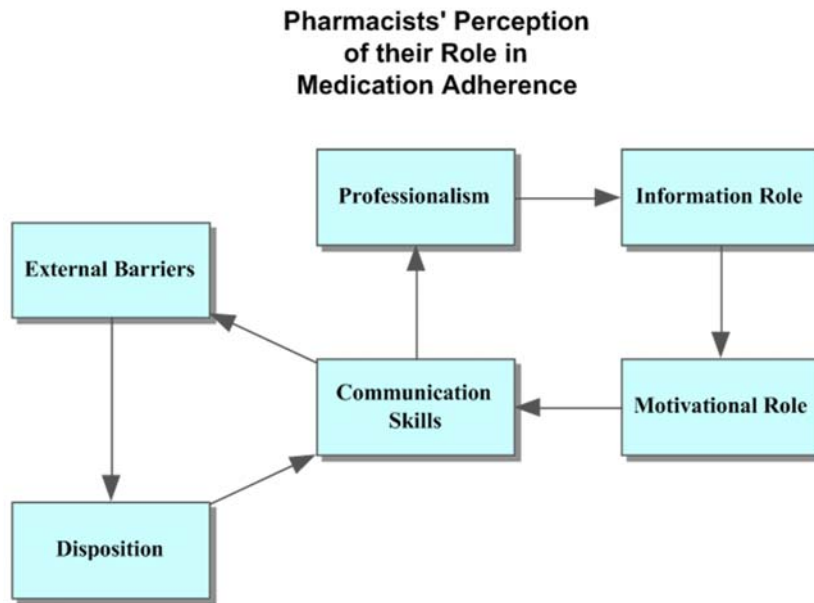


Figure 5.1 Positions and influences of affinities of the system: Pharmacists' Perceptions of their Role in Medication Adherence

5.2.2 Description of the system and affinities

The representation of the system is the result of theoretical coding of the interviews in which the interviewees indicated the relationships among the affinities. The system always consists of at least two components namely elements (affinities) and relationships among the elements. The elements or affinities govern the system and affect one another (Burton, 2015:565).

The SID must be read from top left to bottom right. The SID is arranged in different zones where the extreme left is the driver zone, the middle zone with both drivers and outcomes and the extreme right the outcome zone. The system begins with External Barriers that are the primary drivers of the system and moves towards Disposition that is a secondary driver. Disposition then influences Communication Skills that are also a secondary driver. Communication Skills as a secondary driver has an impact on Professionalism that is a secondary outcome of the previous drivers. However, Communication Skills also influence External Barriers through a backwards link. Professionalism influences the Information Role which is a secondary outcome and the system finally ends with the primary outcome named Motivational Role (see Figure 5.1). The Communication Skills can be influenced by the Motivational Role. Thus the system commences

with External Barriers as the primary driver and ends with the Motivational Role as the primary outcome.

A summary of the affinities and sub-affinities is presented in Table 5.1

Table 5.1: Summary of affinities and sub-affinities

Affinity	Sub-affinities	
External Barriers	Availability of medicine	Corporate pharmacies
	Doctors	National Department of Health
	Medical schemes	Management of pharmacies
	Patient	Public Health care sector
	Responsibilities of pharmacist	South African Pharmacy Council
	Single-owner pharmacies	Pharmacy staff
	Working environment	Postal pharmacies
	Conditions that elicit negative behaviour	Resulting behaviour towards the patient
Disposition	Resulting attitude of pharmacist	Result of positive Disposition of pharmacist
	Comprehension of professional demands	
	Addresses the patient's needs	Comprehension
Communication Skills	Context of communication	Checks patient's understanding and ability to follow a plan
	Cultural differences	Patient's level of medical cognition
	Skills needed by the pharmacist	
	Image	Appearance
Professionalism	Responsibility	Behaviour
	Role of the Pharmacist,	Knowledge
	Relationship	
	Sources of information	Special patients
Information Role	Information	Pharmacist
	Patient	
	Inform	Management of Adherence
Motivational Role	Patient self-responsible	Motivation

A more detailed description of each affinity and how all the affinities interact in the system is presented in the following sections.

5.3 Affinity and sub-affinity descriptions of the system: Pharmacists' Perceptions of their Role in Medication adherence

The following section describes each affinity of the system named Pharmacists' Perceptions of their role in Medication adherence in South Africa.

5.3.1 External Barriers

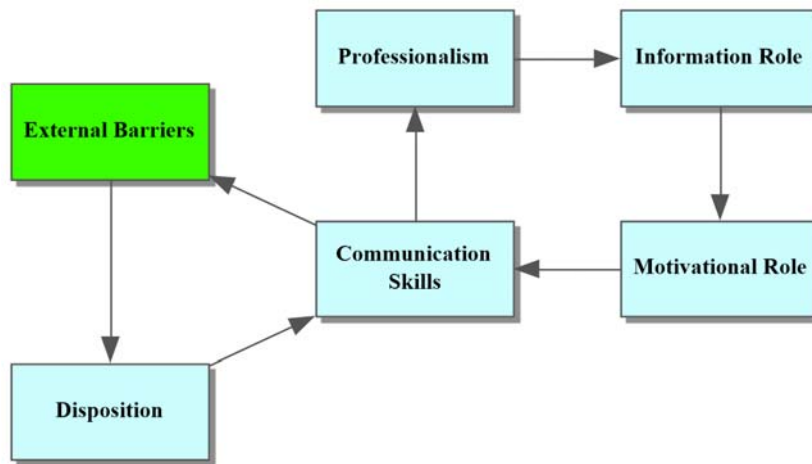


Figure 5.2: Position and influences of External Barriers of the system: Pharmacists' Perceptions of their Role in Medication Adherence

External Barriers were described by the focus group and used in the Issue Statement as ***“Factors beyond your control that determine your practice as a pharmacist”***. External Barriers comprise at least fourteen different factors according to this study or sub-affinities beyond the control of the pharmacists that determine the practice of the pharmacist and eventually the role of the pharmacist in medication adherence. The External Barriers have a direct influence on the Disposition of the pharmacist but are also influenced by communication skills according to Figure 5.2. External Barriers can be considered as very important to the pharmacist as the interviewees spent a lot of time during the interviews describing the affinity and the impact thereof in much detail. Each of the factors will be discussed in more detail.

Table 5.2: Discussion of External Barriers as an affinity

Sub-Affinities	Discussion
Availability of medicine	The availability of medicine in the Private Health Sector is a factor beyond the control of pharmacists when medicines are not delivered on time. Pharmacies do not carry a lot of medicine in stock. Pharmaceutical Companies determine the availability of stock for the release of the medicine to be distributed in the market. Raw materials for the manufacturing of the product could be unavailable. The pharmacy itself or the regional supplier of the medicine may be out of stock

Sub-Affinities	Discussion
	for various reasons. The internal stock management policy of the pharmacy may also contribute to a shortage of some brands of medicine in the pharmacy. The impact of the unavailability of medicine is that patients become negative if their known medicine is not available and will not use a substitute medicine, resulting in medicine non-adherence that the pharmacist has no control over
Corporate Pharmacies	Corporate pharmacies are considered by some pharmacists as a factor beyond the control of the pharmacist for various reasons as will be mentioned briefly. Prescriptions of Corporate Pharmacy Groups are sent from their call centres to the local branches where the pharmacists must prepare the prescription without the patient being present. Because of internal formularies not all the medicines may be available. Corporate Pharmacy Groups have their own House Brand medicines that may not be to the liking of the patients. Some pharmacists are of the opinion that the act of caring for patients in the Corporate Pharmacies may be under pressure. Some pharmacists are also not sure whether the patient will receive individual advice and attention. People have to wait long in queues to be helped and are not always seen by the same pharmacist. Establishing a relationship with the patient in the Corporate Pharmacy is as important as in any other pharmacy. Some single Owner Pharmacists are resistant against the Corporate Pharmacy Groups. Some of the extra and special services of the single owner pharmacies such as delivery of medicine to the patient is not available in the Corporate Pharmacies.
Doctors	The research results indicated that doctors are also considered as external barriers by the pharmacists because the doctor determines what medicine the patient will receive and the pharmacist must follow that prescription. Patients on chronic medicine must see their doctor every six months for a new prescription but also for a check-up. However, sometimes the doctor only signs the new repeat prescription without a check-up of the patient. Pharmacists are not at ease with doctors who are dispensing medicine from their own practices as it is in direct competition with the nearby pharmacy. A working relationship between the doctor and the pharmacist would be beneficial to the patient in the long run.
The National Department of Health of South Africa	The NDoH with its regulating powers has a direct impact on the practice of the pharmacist as an outside factor beyond the control of the pharmacist.
Way in which pharmacies are managed	The way in which pharmacies are managed is also considered by some pharmacists as an external barrier that determine the practice as a pharmacist. Pharmacists working in the pharmacy expect acknowledgement from the managers under difficult situations but do not always receive such acknowledgements. Top managers of some Corporate Pharmacy Groups are also pharmacists with experience of the working environment of the pharmacy. Some pharmacists feel that they do not earn as much as other professionals although there is a demand for pharmacists in South Africa. There are not enough pharmacists in some pharmacies to effectively help all the patients and for the pharmacists to attend to all the other responsibilities of a pharmacist. Many patients waiting in queues to be helped tend to influence the pharmacist to finish every patient's prescription in the shortest amount of time while the pharmacists need sufficient time to focus and concentrate on the patient with his/her medication adherence but time is not always available. Some pharmacists carry a big workload in order to generate turnover for the manager or the company to survive. Pharmacists sometimes feel helpless as they depend heavily on operational infrastructure in the pharmacy that is sometimes out of order.
Medical schemes	Medical Schemes in the Private Health Sector are considered by some pharmacists as a factor beyond their control that determine their practice. In their experience the Medical Scheme controls the Private Health Care system. Most patients only have limited Medical Scheme funds available in a 12-month period to purchase medicine. As Medical Schemes support generic substitution of

Sub-Affinities	Discussion
	medicine to save costs the patient does not always get the same product they are used to at the end of every month that has an impact on his/her medication adherence. Patients are sometimes transferred from one Medical Scheme to another by the administrators with administrative difficulties for the patients regarding the availability of their medicine leading to a negative impact on the medication adherence of the patient. Some Medical Schemes put rules in place to manage the medicine patients can buy and these rules as experienced by pharmacists, do not contribute towards the patient's medication adherence.
Patient him/herself	The Patient him/herself can act as a factor beyond control according to some pharmacists. Some patients can be experienced negatively by the pharmacist because of the attitude of the patients. The patient can distract the pharmacist when he/she is busy with another patient by interfering in the consultation. The patient does not always have enough money to pay for the medicine he/she needs and then rather go without it. Pharmacists feel responsible to always act on the needs of patients. There are some patients that prefer to get their medicine from different pharmacies and this is a practice that is not always to the patient's advantage. Pharmacists also have to deal with patients with special circumstances such as patients in mental institutions, which pharmacists can experience as an external barrier.
Postal pharmacies	Postal pharmacies deliver chronic medicine to patients all over the country by means of courier services. The postal pharmacies have contracts with Medical Schemes to render the services to chronic patients of the Medical Scheme thus removing the patients from the patient's usual pharmacy and pharmacist, except for acute medicine that still may be dispensed by the local pharmacy. Pharmacists working at postal pharmacies never come into one-on-one contact with the patients with possible detrimental negative effects on adherence.
Public Health Care Sector	The Public Health Care Sector in general was identified as an external barrier. Medicines are also not always available in the Public Health Sector for specific reasons and the management of medicine is perceived as a massive problem by the pharmacists in the pharmacies. Budgetary constraints have a detrimental effect on the availability of medicine. Infrastructure that is old and broken or not up to date or a lack of facilities make it difficult for the pharmacist to perform his/her duty. The management of health-related information from higher up in the structure is not always up to date and available to the pharmacist on ground level. The assigned role of the pharmacist in the public sector is perceived by pharmacists as detrimental to providing information to the patients. The workload is very high and pharmacists have to work after hours to get through a day's work.
Responsibilities of the pharmacist	The responsibility of the pharmacist to serve all patients is a factor beyond control of the pharmacist determining the practice of the pharmacist. The pharmacist has, along with his/her role to dispense medication to people, various other responsibilities that require a lot of attention from him/her.
South African Pharmacy Council	Some pharmacists feel alienated from the South African Pharmacy Council and consider it as an external barrier.
Single owner pharmacies	Pharmacists are under the impression that Single owner pharmacies are under enormous pressure to survive from day to day in the Private Health Sector.
Pharmacy staff	The attitude and behaviour of the pharmacy staff can have a negative impact on the professionalism of the pharmacist and the pharmacy.
Working environment	The working environment of the pharmacist in a pharmacy is also considered to be an external barrier. Some pharmacies have such busy schedules that the pharmacists do not have time to either eat, rest or go to the bathroom during a normal day's work. The medicine as stock needs to be managed as well as medicines which have an expiry date after which it is illegal to sell such medicine to the public. That medicine needs to be destroyed resulting in a financial loss.

Sub-Affinities	Discussion
	The working environment gives rise to external factors that may put extra pressure on the pharmacist in his consultation with patients such as noise from building activities next door or the pharmacist running late and patients waiting impatiently in front of the pharmacy. The pharmacist is dependent on the infrastructure to render a professional service to patients such as computers, internet and telephone lines. However, when the telephone is in working order, the ringing can intrude on the interaction between the pharmacist and the patient.

In the following section the affinity Disposition and the sub-affinities are discussed.

5.3.2 Disposition

Disposition is described in the Issue Statement as “The pharmacist’s attitude within his relationship with his patients”.

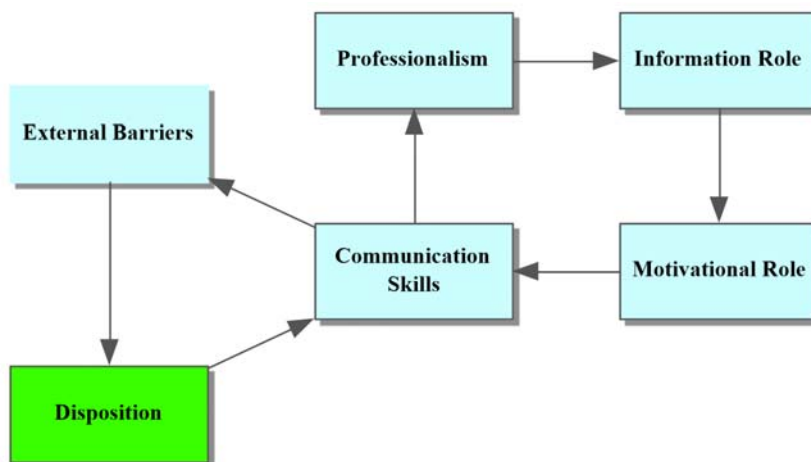


Figure 5.3: Position and influences of Disposition of the system: Pharmacists’ Perceptions of their Role in Medication Adherence

Disposition is influenced by External Barriers and influences Communication Skills according to Figure 5.3. The Disposition of the pharmacist can either be negative or positive. The origin of the Disposition can either be from a negative experience or the negative environment or from a positive experience or the positive environment. Both the negative and the positive aspects of Disposition will briefly be discussed.

Table 5.3: Discussion of Disposition as affinity

Sub-affinity	Discussion
Conditions that elicit negative behaviour	<i>Conditions that elicit negative behaviour of the pharmacist</i> might be due to previous negative experiences with a particular patient with the result that

Sub-affinity	Discussion
	the pharmacist could find it difficult to enthusiastically help that patient. The pharmacist will still help the patient but just the bare minimum because of the negative behaviour of the patient. The pharmacist has an assigned role in the working place and if that role is not congruent with the pharmacist's own expectations thereof, the pharmacist could have a negative attitude. A heavy workload that overburdens the pharmacist will also lead to the pharmacist not having enough time for interaction with patients.
Results of a positive Disposition of the pharmacist	The <i>result of a positive disposition of the pharmacist</i> will lead to positive behaviour towards the patient such as extra care, walk the extra mile and helping the patient. The pharmacist might provide the patient with information and options when difficult situations arise in the pharmacy such as the unavailability of medicine. The patient can experience that he/she is part of the process. When the pharmacist knows the patient on a more personal level it creates a positive relationship between the pharmacist and patient. The pharmacist sometimes tries to focus time and energy on the "better" patients and not on the patients that try obtain medicine without prescription. The pharmacist could then also provide the patient with non-medical advice such as cost effective upgrading of Medical Scheme options that may lead to better medication adherence of the chronic patient. Seen in the broader picture of the pharmacy, a positive Disposition and good service will be beneficial for the pharmacy as more patients return to pharmacies for service and help.
Pharmacist's resulting behaviour	The <i>pharmacist's resulting behaviour</i> vis-à-vis the patient is to be always prepared to help the patient to the best of his/her ability without letting his/her personal situation get in the way. The pharmacist will always maintain the utmost respect for the patient irrespective of who the patient is. Pharmacists with a positive disposition are service-driven and put services in place to the benefit of the patient. There are always patients with special needs and circumstances such as patients in mental institutions that challenges the pharmacist.
Comprehension of professional demand	The pharmacist's <i>comprehension of the professional demand</i> ensures that the pharmacist will always have appropriate knowledge to ensure a professional relationship with the patient. As the custodian of medicine the pharmacist should never succumb to external pressures and then dispense or handle medicine pharmaceutically incorrectly. The working conditions of the pharmacist are not easy and relaxed and the pharmacist needs to have a positive Disposition towards the profession, patient and medicine to be able to be friendly, having a positive relationship with the patient and be ethical in his/her conduct. Patients who are not clients of a particular pharmacy might put pressure on the professional conduct of the pharmacist by requesting assistance with delivery of medicine and Medical Scheme information that leaves the pharmacist feeling that he/she could rather use the time servicing his/her own clients.
Resulting attitudes of pharmacist	The <i>resulting attitude of the pharmacist</i> with a positive Disposition towards the patient is a friendly pharmacist filled with passion for his/her profession and trusted by his/her patients. To walk the extra mile with the patient is purely an individual decision of the pharmacist based on his positive Disposition towards the patient. The positive patient orientated pharmacist will help the patient within the limits of the law and ethical behaviour.

In the following section the affinity Communication Skills as well as the sub-affinities are discussed.

5.3.3 Communication Skills

Communication Skills are described in the Issue statement by the focus group as “**A set of skills needed by the pharmacist so that all the patients can understand him/her**” (the pharmacist).

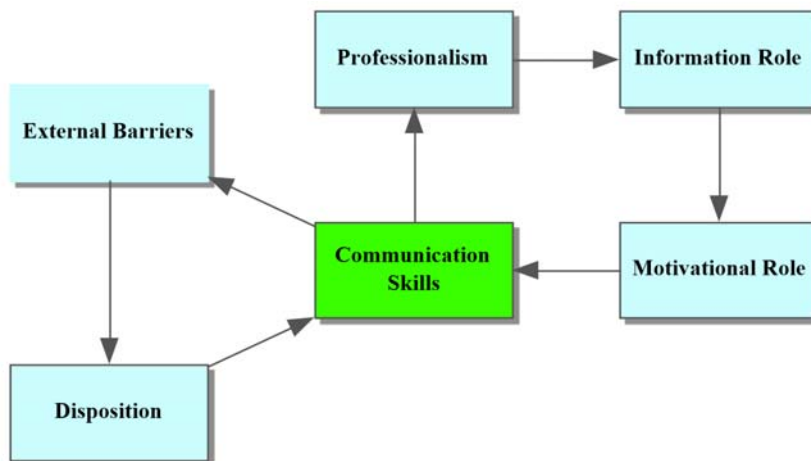


Figure 5.4: Position and influences of Communication Skills of the system: Pharmacists’ Perceptions of their Role in Medication Adherence

The Communication skills of the pharmacist enable him/her with the ability for a meaningful interaction with the patient in a professional manner to provide information and motivation. The communication skills are influenced by the Disposition of the pharmacist as well as the Motivational Role. It can by itself have an influence on External Barriers and Professionalism. The sub-affinities of Communication Skills are discussed briefly.

Table 5.4: Discussion of Communication Skills

Sub-affinity	Discussion
Addresses the patient’s needs	The pharmacist will always strive to address the patients’ needs in their interaction during the communication process
Comprehension of the patient	Comprehension of the patient is understanding what the medicines are for that must be taken correctly by the patient. It is an outcome of the communication process between the patient and the pharmacist.
Context of communication	The context of communication between pharmacists as colleagues and professionals is also of importance. When communicating with the doctor regarding a patient or medicine the pharmacist must always be prepared with other information and an alternative suggestion, all for the benefit of the patient. The context of communication between the pharmacist and the patient can either be by telephone or during a focused conversation
Check the patient’s understanding and ability to follow a plan	Check the patient’s understanding and ability to follow a plan. The pharmacist must ensure that the patients understand all the information that was given to him/her by asking questions and

Sub-affinity	Discussion
	facilitating an environment where the patient will feel free to ask questions.
Cultural differences	Cultural differences. The patient and the pharmacist need to find a common language to be able to understand each other during the communication process for the effective exchange of information between them. In any multicultural country, the patients with different lay health beliefs regarding health and medicine from different cultures, speaking different languages are a challenge for the pharmacist.
Patient's level of medication cognition	The patient's level of medication cognition. The pharmacist needs to choose his words correctly while informing the patient of the "need to know" negative detail of the medicine so that he does not scare the patient. Sometimes the patient only wants to know the basic essential information like when to take the medicine and not the pharmacological working of the antibiotic. The patients are often caught up between their own personal circumstances and not understanding the importance of adherence. Although the pharmacist knows the correct scientific terminology he/she needs to communicate to the patient with lay person language on their own unique level of understanding. The pharmacist may have a volume of information for the patient but providing less information that the patient can remember well rather than remembering nothing at all is in the interest of the medication adherence of the patient. Some patients have only a very basic level of literacy and the pharmacist needs to adjust his communication to give advice and pharmacists need to be creative in developing better ways to assist patients with limited knowledge of medicine.
Communication Skills	Several <i>communication skills needed</i> by the pharmacist were identified and will be discussed below: The skills to communicate to the patient the correct information needed at the correct time. The awareness of what words are used in communication in order to convey the correct message. The skills to determine the correct level of communication needed by the patient. The skills to ensure two way communication between the patient and the pharmacist for effective transfer of information. The skills to interpret body language as patients "speak" loudly through their body language. There will always be some level of conflict between the pharmacist and the patient and the management thereof need a certain set of skills to be learned by the pharmacist. To show empathy with the patients is one of the first communication skills the pharmacist needs to be competent in. The skills necessary to try and keep the conversation with the patient focussed on the medicine in the short time available for interaction. The skills to give potentially sensitive information without offending the patient. Trying to build a professional relationship by knowing your patients when they are not patients. The best communicator has the best listening skills and does not jump to conclusions before the patient has finished his/her story. Not many pharmacists are competent in the skills of the management of medication adherence because the system mainly focusses on the handing over of medicine to the patient in the quickest and most effective way

In the following section the affinity Professionalism and the sub-affinities are discussed.

5.3.4 Professionalism

Professionalism is “**More than professional appearance and behaviour. A way of being**” according to the Issue Statement.

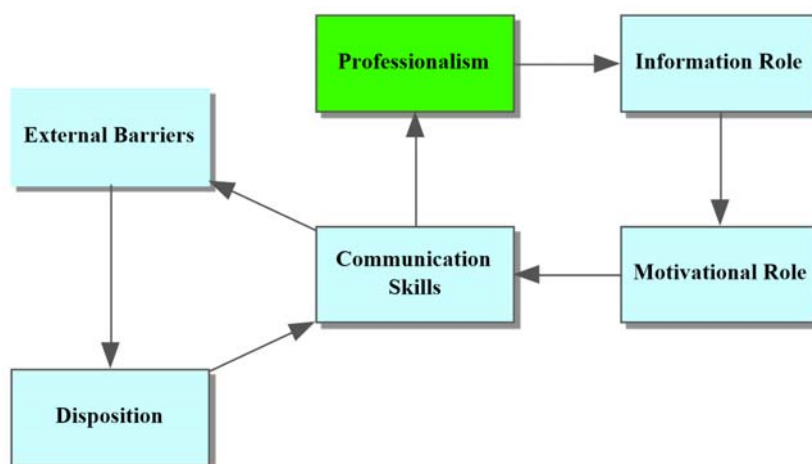


Figure 5.5: Position and influences of Professionalism of the system: Pharmacists’ Perceptions of their Role in Medication Adherence

Professionalism is influenced by Communication Skills and influences the Information Role according to Figure 5.5. The sub-affinities of Professionalism are discussed briefly.

Table 5.5: Discussion of Professionalism

Sub-affinity	Discussion
Image	An <i>image</i> of trust and confidence should always be conveyed by the pharmacist.
Appearance	Although Professionalism is more than <i>appearance</i> , it is still important that the pharmacist and staff should be dressed neatly and the white coat is still considered as professional by the public and some pharmacists.
Responsibilities	The pharmacist has the following <i>responsibilities</i> that are seen as part of Professionalism and will be discussed below: The pharmacist is responsible for the medication adherence of the patient and partly responsible for the outcomes of the patient’s medicine treatment. All the information of each patient needs to be handled with the utmost confidentiality and respect under the supervision of the pharmacist. Ethical conduct is expected of every pharmacist regardless of the context. Responsibility also has consequences as the pharmacist will be held responsible for all mistakes when acting as the responsible pharmacist in the pharmacy. The pharmacist also assists in the training of more assistants and it is to the benefit of the patients.

Sub-affinity	Discussion
Behaviour	Some of the corporate pharmacy groups have rules regarding the professional conduct and <i>behaviour</i> of the pharmacist and staff. The world view of the pharmacist fosters the professional conduct of the individual. Discriminative behaviour against patients is not expected from a professional person such as a pharmacist. Non-professional conduct in and outside the pharmacy is totally unacceptable for a pharmacist and the pharmacist will always strive to behave to the patient's advantage. Personal circumstances that might be negative may not influence the Professionalism of the pharmacist.
Role as a pharmacist	The individual pharmacist needs to understand his/her personal <i>role as a pharmacist</i> . The system in which the pharmacist is working may have a negative or positive impact on the pharmacist's perception of his/her role as a pharmacist.
Knowledgeable pharmacists	A <i>knowledgeable</i> pharmacist is trusted by the patients and the pharmacist as a professional will have an everlasting quest for new, recent and updated knowledge. Professional conduct of the pharmacist develops from years of experience. The pharmacist needs to know his patient personally as far as possible so that the knowledge of the pharmacist can be used to the advantage of the patient. Operational and non-pharmaceutical knowledge of the pharmacy and working environment is as important as the pharmaceutical knowledge of the pharmacist.
Relationships	<i>Relationships</i> are an integral part of Professionalism and the pharmacist should feel free to request assistance from his colleagues on behalf of the patient. Therefore professional relationships with doctors are important for pharmacists as they are a team with the well-being of the patient as the focus. The relationship between patient and pharmacist might be negatively influenced by negative behaviour of a patient towards the pharmacist. A positive relationship between a pharmacist and a patient is beneficial for the patient. A pharmacist acting professionally gives the patient peace of mind by acting as a confidant. In the relationship with the patient the pharmacist needs to show and acknowledge empathy with every patient. If a positive relationship is in place between pharmacist and patient, the patient prefers to wait to be helped by the pharmacist he/she trusted with his/her health, the patient will still have respect for the pharmacist and the pharmacist will walk the extra mile for the patient whenever possible.

In the following section the affinity Information Role as well as the sub-affinities are discussed.

5.3.5 Information Role

The description of the Information Role according to the Issue Statement is “**Functional knowledge that the pharmacist shares with the patients.**”

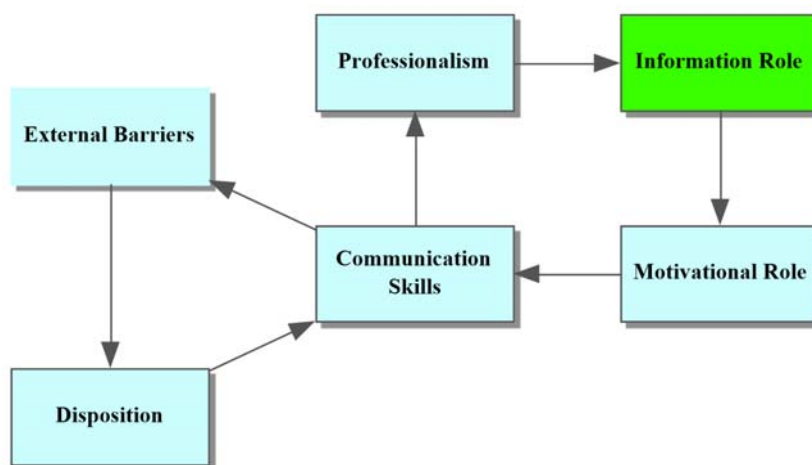


Figure 5.6: Position and influences of Information Role of the system: Pharmacists' Perceptions of their Role in Medication Adherence

The Information Role of the pharmacist is influenced by the Professionalism of the pharmacist and influences the Motivational Role of the pharmacist according to Figure 5.6. The sub-affinities of Information Role will be discussed briefly.

Table 5.6: Discussion of Information Role

Sub-affinity	Discussion
Sources of information	Other <i>sources of information</i> are also utilized as the pharmacist does not always have all the information and then they make use of other health care workers such as medical doctors or nurses to acquire information that is requested by the patient. If correctly used the package insert can positively assist the pharmacist in the Information Role. Information from the Pharmaceutical Companies regarding the unavailability of medicine products will empower the pharmacists to provide their patients with proper information. Patients acquire information from the source they are comfortable with.
Patient	The <i>patient</i> must understand the instructions as well as the reason of the use in order to adhere to the medication regime. Some older patients cannot decide which of the many medicines needs to be taken when and often depends on the pharmacist to help him/her to adhere to the correct instructions or the pharmacist often makes use of the help of the family, children or spouses to ensure that the patient adheres. The patient must understand the instructions as well as the reason of the use in order to adhere to the medication regime.
Pharmacist	The <i>pharmacist</i> must be able to assess the patient's level of information needed in terms of difficulty, quantity, detail, ability and comprehension and then provide the patient with the most important information. The pharmacist must ensure that the patient has the correct information and knowledge of even the most common aspects of the medicine usage. All applicable information more than the bare basics regarding the usage of the medicine has to be communicated to the patient. The pharmacist needs to point out contra-indications with other medicine as well as side-effects that the use of this medicine may cause with

Sub-affinity	Discussion
	extended usage. The experienced pharmacist can provide the patient with pharmaceutical related information not necessarily found in textbooks or on the medicine pamphlet. The patient that receives not only the medicine but also information regarding the medicine will adhere better to the medicine regime. Labels on medication need to be utilized by the pharmacist to provide the patient with essential and important information. The pharmacists have computer programmes at their disposal to assist them <i>inter alia</i> with information regarding interactions between medicine and other substances for his role in providing information to the patient. A pharmacist has many sources available to update, renew and refresh his knowledge base namely text books, research, internet, training sessions and more. He/she needs to monitor the correct use of apparatus by the patient and to provide guidance and information to facilitate medication adherence. The pharmacist should provide the patient with advice regarding medication adherence.
Special patients	<i>Special patients</i> are a challenge to the pharmacist regarding his/her Informational role and the pharmacist must always assess the patient's need for information especially if it is mentally challenged patients in an institution.
Information	The pharmacists need to personalize the <i>information</i> for the patient and set him/her at ease but the patient still needs to be informed of the dangerous effects if the medicine is not correctly used. There are golden rules that the pharmacist should tell the patient when the patient is taking medicines such as what medicine, why the medicine is taken and how should the medicine be used. Patients should not be overloaded with information at once, but should receive it gradually as the relationship develops. The pharmacist must make sure he/she has access to the most recent developments and newest information regarding the illness and the relevant medication.

In the following section the affinity Motivational Role as well as the sub-affinities are discussed.

5.3.6 Motivational Role

The Motivational Role as defined by the focus group is **“All your actions in order to motivate the patient to adhere”**.

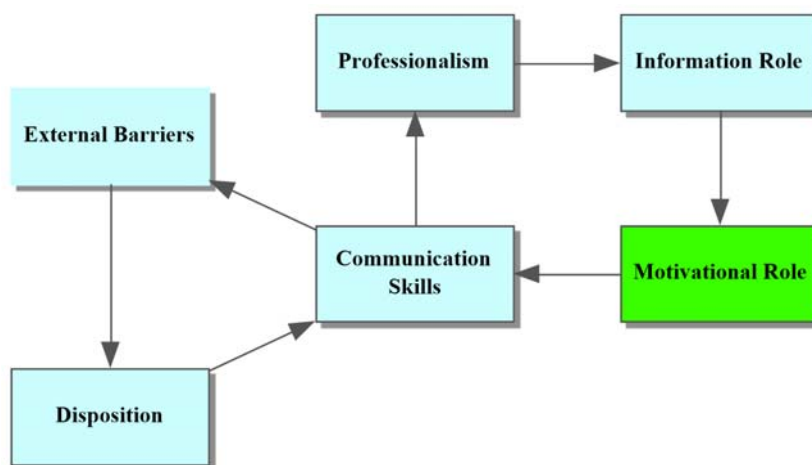


Figure 5.7: Position and influences of Motivational Role of the system: Pharmacists' Perceptions of their Role in Medication Adherence

The Motivational Role of the pharmacist is influenced by the Information Role and itself influences the Communication Skills. The affinity and sub-affinities are discussed briefly

Table 5.7: Discussion of Motivational Role

Sub-affinity	Discussion
Inform	<i>Inform</i> the patient so that he/she understands why the medication needs to be used and then the patient will be motivated to adhere to the usage thereof The patient will be motivated more when he or she is working towards clearly defined and known outcomes as it is ultimately the patient's own decision to be motivated The patient will benefit by trusting the pharmacist to transfer the knowledge and information regarding his/her illness.
Management of adherence	In the <i>management of adherence</i> the patient needs to be monitored and be confronted when needed. When monitoring the medication adherence of the patient it is sometimes necessary to provide extra information to the patient or receive extra information from the patient to be successful. The patient will be better motivated when he is part of the plan that they are working towards. Extra care from the pharmacist will motivate the patient even more. It is beneficial to the patient if the pharmacist knows more of the patient's personal circumstances. Person to person interaction between the pharmacist and the patient is still the best way to motivate the patient. The pharmacist has many ways at his disposal to assist the patient when the patient has difficulty with medication adherence.
Motivation	<i>Motivation.</i> Stick a "burr in his fur" to help the patient to identify a small but persistent irritation for focussing his/her attention to the wanted outcome. Addressing the positive results of adhering to their medicine regime may motivate most patients. Some corporate pharmacy groups developed motivational schemes to assist patients in their motivation to adhere to their medicine regime. Addressing the negative consequences of not adhering to their medicine regime may motivate certain patients. The patient might be demotivated if his

Sub-affinity	Discussion
	medicine is repeatedly not available on time. Patients in special care facilities are not easily motivated with ordinary motivation methods.
Patient and self-responsibility	The <i>patient</i> needs to take <i>self-responsibility</i> assisted by the pharmacist, for his/her own medicine treatment.

A tour through the system follows in the next section

5.4 A tour through the system: Pharmacists' Perceptions of their Role in Medication Adherence

5.4.1 Theoretical summary of the system

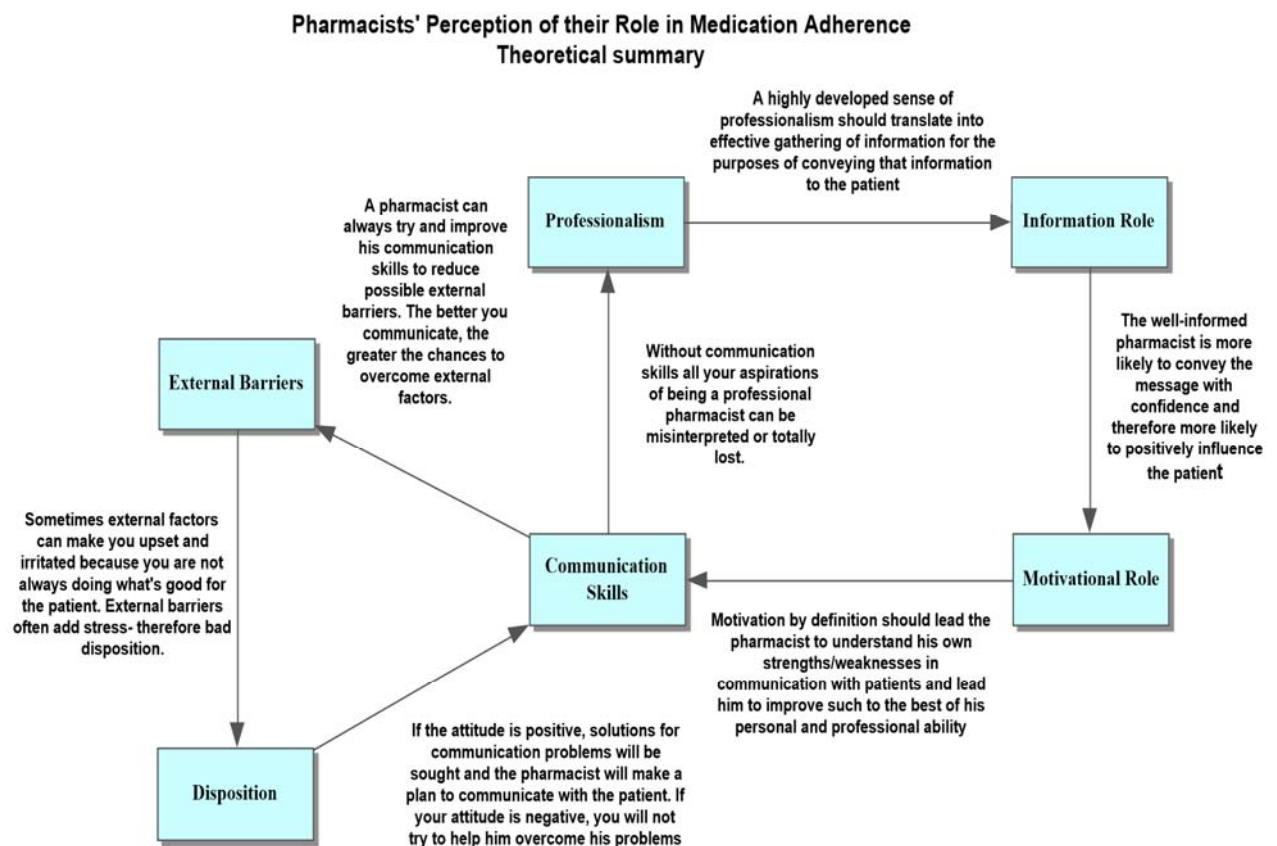


Figure 5.8: Theoretical summary of the system: Pharmacists' Perceptions of their Role in Medication Adherence

The pharmacists' perceptions of their role in medication adherence of the patient can be described as a path which begins with *External Barriers* and ends with the *Motivational Role*. The system

can be used as a path where each element or affinity influences the next. The affinity is perceived positively or negatively and can influence the experience of the next affinity (Northcutt & McCoy, 2004:333).

Table 5.8: Assignment of affinities in topological zones

SID Assignments		Affinities
1	Primary Driver	External Barriers
2	Secondary Driver	Disposition
3	Secondary Driver	Communication Skills
4	Secondary Outcome	Professionalism
5	Secondary Outcome	Information Role
6	Primary Outcome	Motivational Role

(The affinities are numbered according to their SID assignments. The numbers will be used throughout the rest of the chapter.)

Imagine for a moment the following scenario: The pharmacist is in his/her dispensary and the patient is in front of the pharmacist and the pharmacist wants to fulfil his/her Motivational Role to motivate the patient to use medicine correctly and to adhere. If the scenario is applied to Figure 5.8 the pharmacist will be found at the right hand side of the system in the Motivational Role. But for the pharmacist to reach that position the path from External Barrier to Motivational role needed to be followed.

The easiest way to explain the path is to put the pharmacist in the role of the communicator with Communication Skills in the middle of the system. The description of Communication Skills is a “set of skills needed by the pharmacist so that all of the patients can understand him/her” The pharmacist will with Professionalism, described as “more than professional appearance and behaviour, a way of being”, provide information by means of the Information Role, described as “functional knowledge that the pharmacist shares with the patients”, to motivate the patient. While motivating the patient the pharmacist might find it necessary to return to his/her Communication Skills to apply another set of skills with Professionalism to provide information to motivate the patient.

Returning to the system with the pharmacist with communication skills it can be seen that the pharmacist is also influenced by his/her Disposition described as “the pharmacists’ attitude within his relationship with his/her patients” and Disposition is influenced by External Barriers described as “factors beyond your control that determine your practice as a pharmacist”. External Barriers

are the primary drivers of the system and influence all the other affinities from that position. From the description of External Barriers it can be deduced that External Barriers might negatively influence the Disposition of the pharmacist. The decision lies then within the pharmacist, determined by his/her attitude, how to process the impact of the External Barriers, that is how to apply his/her Communication Skills to ultimately motivate the patient.

The pharmacist can influence the External Barriers through his/her Communication Skills by applying the correct communication skills in order to override the negative effect on his/her Disposition and explain the situation to the patient.

The sections below walk the reader through the system, describing how the relationships work and identifying feedback loops

5.4.2 Different views of the reality of the system: Feedback loops, zooming and naming

Feedback loops in terms of general systems are, according to Northcutt and McCoy (2004:30, 31) present when there is a relationship from an element later in the system back to one earlier in the system, where *later* means an element towards the outcome zones and *earlier* are elements towards the driver zones. Relationships are recursive but generally known as feedback loops. “Recursive relationships result when a relative outcome feeds back or influences the state of an element that is a relative driver” according to Northcutt and McCoy (2004:30).

Zooming in and out on a system allows the researcher to develop different views of a system. By zooming out, progressively simpler views with fewer feedback loops, less branching and fewer affinities are constructed according to Northcutt and McCoy (2004:335).

5.4.3 Normal view of system: Pharmacists' Perceptions of their Role in Medication Adherence

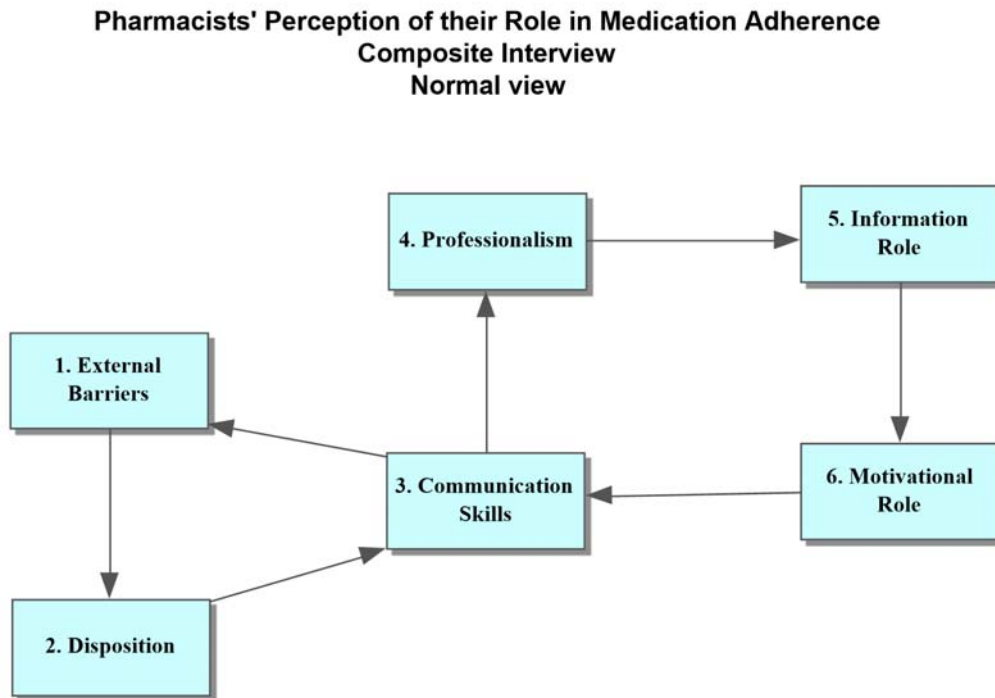


Figure 5.9: Normal view of system: Pharmacists' Perceptions of their Role in Medication Adherence

The view of the system in Figure 5.9 is the normal view of the composite SID. When the researcher inspected Figure 5.9 it was clear that two interlocking feedback loops exist in the system. The researcher revisited the axial codes and descriptions of each of the affinities of the two feedback loops and the placement of the loops in the system and came to the conclusion that these loops can be defined as a sub-system each (Northcutt & McCoy, 2004:335). Applying this to our system it means: Affinities: External Barriers, Disposition and Communication Skills (affinities 1, 2 and 3) could be replaced by a “super affinity” as well as affinities: Communication Skills, Professionalism, Information Role and Motivational Role (affinities 3, 4, 5 and 6) could all be replaced by another single “super affinity” as be seen in the intermediate view of the composite SID in Figure 5.10

5.4.4 Intermediate view of system: Pharmacists' Perception of their Role in Medication Adherence.

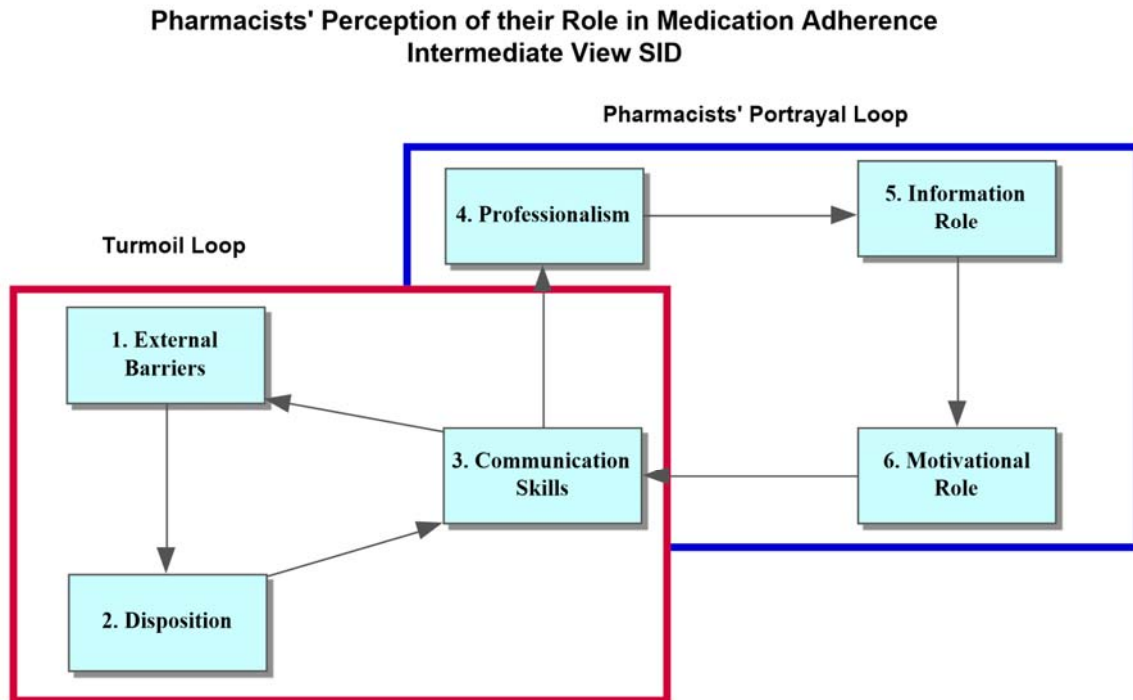


Figure 5.10: Intermediate view of system: Pharmacists' Perceptions of their Role in Medication Adherence

In the intermediate view (Figure 5.10) of the system (when zooming out) the two feedback loops were identified and the individual affinities were replaced by the two “super affinities”. Both feedback loops can be seen in Figure 5.10 which are without branches except for Communication skills that interlocks the two feedback loops together. In the left hand side loop are any one of the affinities (Communication Skills, External Barriers and Disposition) simultaneously drivers and outcomes of each other where Communication Skills directly influence External Barriers but External Barriers indirectly through Disposition influence Communication Skills. Independent of the feedback loop, Communication Skills, Disposition and External Barriers have separate meanings and are positioned on different levels in the topology of the system as primary drivers and secondary drivers. In the feedback loop they all influence each other and because of their interconnectedness, they also have meaning as a dynamic set of affinities (Northcutt & McCoy, 2004:335). In the right hand side loop any one of the affinities (Communication Skills, Professionalism, Information Role and Motivational Role) is simultaneously a driver and an outcome of each other where Communication Skills directly influence Professionalism but the Information Role indirectly through Professionalism and the Motivational Role also indirectly

through Professionalism and Information Role. Communication Skills, Professionalism, Information Role and Motivational Role have separate meanings and are positioned on different levels in the topology of the system as primary outcomes, secondary drivers and secondary outcomes. In the feedback loop they all influence each other and because of their interconnectedness, they also have meaning as a dynamic set of affinities (Northcutt & McCoy, 2004:335). The researcher also reviewed the placement of feedback loops in the topological zone of the system as well as the interview data. The researcher came to the conclusion that the affinities in the first loop involved focusing on the External Barriers over which the pharmacist has no control and the impact thereof on the practice of the pharmacist. The pharmacist's mode of dealing with the turmoil caused by such external factors is a precursor in the pharmacist's preparation to make a decision as to what Communication Skill should be used in the second Loop. The Second Loop involves how the pharmacists portray him/herself to the patients within the system to reach the Motivational Role as the primary role or outcome of the pharmacist regarding medication adherence. Thus the first loop is named "Turmoil Loop" and the second loop is named "Pharmacist's Portrayal Loop".

5.4.5 Distant view (telephoto) of system: Pharmacists' Perceptions of their Role in Medication Adherence.

**Pharmacists' Perception of their Role in Medication Adherence
Distance View SID**

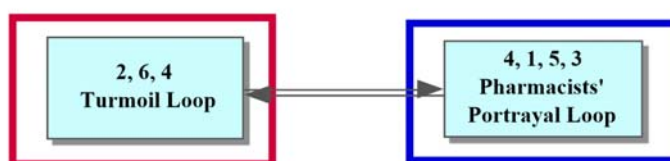


Figure 5.11: Distant view of the system: Pharmacists' Perceptions of their Role in Medication Adherence.

The final and most distant view of the systems where the two feedback loops were replaced by the two super affinities can be seen in Figure 5.11. There also exists a bidirectional relationship between *The Turmoil Loop* and *The Pharmacist Portrayal Loop*. This system cannot be zoomed out any further.

The feedback loops are discussed in more detail in the following section

5.4.6 Discussion of the feedback loops

5.4.6.1 The Turmoil Loop

The Turmoil Loop comprises of a three affinity feedback loop with affinities External Barriers, Disposition and Communication Skills as can be seen in Figure 5.12

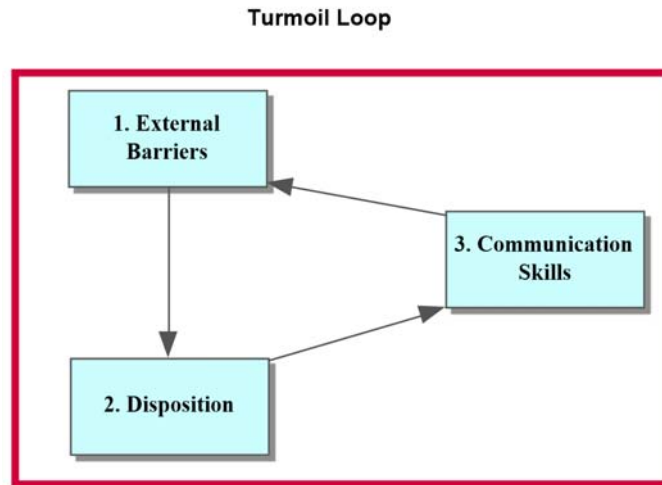


Figure 5.12: The Turmoil Loop

The Turmoil Loop is focused on the part of the system where the external environment has the greatest impact on the system through the External Barriers. In the system named Pharmacists' Perceptions of their role in Medication adherence, External Barriers feature as the primary driver with Disposition and Communication Skills as secondary drivers.

The system presents the interaction between the pharmacist and the patient in front of him/her and focusses on his/her perception of the role in the medication adherence of the patient. The pharmacist wants to fulfil the primary outcome and that is the Motivational Role with the patient. The Turmoil Loop gives some background and enlightens the reaction of the pharmacist to the external world of his practice as pharmacist because of the external factors that have some influence on his/her practice. The pharmacist is constantly in turmoil as to how to address the external factors by means of his/her attitude and which communication skills are most appropriate to apply to be able to reach his/her Motivational Role in the second loop named The Pharmacist's Portrayal.

5.4.6.1.1 External Barriers' influence on Disposition

The External Barriers are a reality in the world of the pharmacist in South Africa that the pharmacist cannot escape or has limited power and authority over. They are factors beyond

his/her control but the factors determine his/her practice and ultimately the interaction and relationship with the patient and medication adherence. The pharmacist might be confronted by a possibility of 14 external factors that were identified by the participants as sub-affinities of External Barriers. The external factors may not all be applicable to the specific pharmacist in his/her specific circumstances and interaction with the patient but he/she will always be aware of the impact external factors have on the practice. Factors such as the Availability of medicine will have a more direct influence on all pharmacists especially if they are only made aware of the situation with the patient standing in front of them. If medicine is not available the patient will not have medicine as prescribed by the doctor and the situation requires an immediate response and decision of the pharmacist. The responsibility sits squarely on the shoulders of the pharmacist to find a positive outcome for the problem. Pharmacists experience this problem very negatively especially because they cannot control it at all and now have to help the patient or sometimes bear the brunt of the patient's anger. Other factors such as the Public Health Sector will not influence the pharmacist in the Private Health Sector as much as for example the Management of the private pharmacy by the owner with a shortage of staff or other responsibilities of the pharmacist.

The External Barriers will have a direct influence on the pharmacist's Disposition towards the patient. An external factor such as medicine that is not available *"affects the pharmacist's role in serving patients, it gives them stress and that can be seen as bad attitudes"*. The pharmacist feels that *"if you are working under pressure and cannot convey information you get bored and frustrated and this makes pharmacists negative about their profession and they lose knowledge and then at some point they do not do very much to remain informed about new techniques and information"*. The pharmacist in corporate business, where the main drive focuses on sales performance, may feel overloaded with tasks and it has a direct impact on the time spent with patients to communicate valuable information to ensure correct use and adherence.

"On many days, external barriers like medical aids causing us to wait on hold for ages, and then not sorting out the problem, causes huge attitude problems. We realize that it is not the patients fault, but we are cross and they are cross for having to wait". The shortages of staff can be found in the private as well as the public sector and *"in the civil service pharmacists get demotivated very quickly because of a shortage of resources, they become negative, and do not have a desire to help patients in primitive circumstances where there are no consultation facilities."*

The patient him-/herself can also be regarded as an external factor that has the following impact on the Disposition of the pharmacist: *"To then remain friendly towards the patient if he gets rude with you about something that you have no control over. Pharmacists are human and have human emotions. So, a rude customer is usually treated differently even though one keeps the*

professionalism in terms of providing the necessary information. It's usually run through and not confirming if the person understand. It is a negative attitude that the patient already comes in with then you are really not in the mood to help him."

"The attitude should not be influenced but too little time to communicate properly with a patient can sometimes lead to a sense of frustration and the fact that you are simply a glorified pill pusher." External barriers may prevent a conducive atmosphere/set of circumstances that enable effective communication, thus influencing disposition, as opposed to intrinsic knowledge or professionalism per se". A possible solution of a negative disposition because of external barriers is: "A good attitude should be part of any person, irrespective of the external barriers which might be positive or negative. Unfortunately, once again, we live in a world where the opposite is true."

5.4.6.1.2 Disposition has an influence on Communication Skills

The effect of the influence of Disposition on communication skills can either be positive or negative. *"A person's attitude determines the outcome of the action, be it positive or negative"* The positive effect of Disposition: *"If the pharmacist has a positive, friendly attitude and is not prejudiced, he/she will be able to communicate better and the patient will have more confidence to ask questions should he/she not understand."* A pharmacist with a positive attitude may find solutions to communication problems and the pharmacist will make a plan to communicate with the patient. If your attitude is negative, you will not try to help him overcome his problems. *"Positive people also communicate more effectively and convey knowledge better than negative people. Their inputs are also more readily elicited because the perception exists that they can be approached more easily."*

The negative effect of a negative disposition can affect the communication skills and interaction with the pharmacist. *"In cases where communication is difficult a pharmacist with a negative or indifferent disposition will not make the effort to attempt communication via other means, e.g. pictograms or spend the extra time ensuring the patient understands".* A negative Disposition will make the communication ineffective up to the point that the pharmacist can no longer communicate properly with the patient. *"If a pharmacist has a bad disposition, they will not be able to communicate effectively. If your attitude is negatively towards your patient you will not be able to communicate properly to your patient - you might communicate in a rude way to your patient if you believe the patient has been rude to you."*

5.4.6.1.3 Communication skills influencing External Barriers

The respondents' view of the influence of Communication Skills to External Barriers is as follows:
"The better you communicate, the greater the chances to overcome external factors. Good/effective communication skills can often overcome or limit certain external barriers."

5.4.6.1.4 The Turmoil Loop as a Negative Feedback loop.

Loops can either be vicious (negative) or virtuous (positive) circles. In the virtuous loops, one element makes the next better and the outcome is positive. The feedback loop may become negative and then the feedback loop "captures" or holds the pharmacist captive and keeps on "spinning", increasing the negative, resulting in a vicious circle where every negative aspect of the affinity makes the next affinity even more negative. Every subsequent cycle will become more and more negative and there seems to be no exit from the circle and it keeps going until the loop implodes, collapses and breaks. If the system breaks, the pharmacist may have a very bad experience and often exit the situation. Sometimes loops can have both vicious and virtuous cycles where the pharmacist experiences it as very negative at first but when corrected, the outcome is positive in the end.

To fix a vicious loop the pharmacist needs to recognize what is wrong in each element and make corrections. It can even be a self-reflecting fix because the pharmacist can, by knowing what is wrong, change that affinity him/herself. Most often the fix resides in one of the elements before the loop or early in the loop and the fix might require an outside intervention from an individual with authority if it is towards the front or outcome of the system McCoy, 2016.

The environment the pharmacist is practising in South Africa, is summarised as follows by one of the participants: *"Pharmacists in South Africa work in a negative environment which influences our attitudes and behaviours on a daily basis (we must be the most negative profession I've come across) whilst we may understand and truly believe in our professionalism and role in health".*

The following scenario may take place in a pharmacy. The pharmacist realises that the medicine he ordered from the suppliers is not available and he needs to dispense the medicine to the patient standing in front of him with the prescription. The pharmacist feels frustrated and not in control of the situation and the unavailability of the medicine influences the Disposition of the pharmacist negatively and the pharmacist's attitude is negative. The negative attitude influences the communication skills of the pharmacist and in his communication with the patient he displays a negative attitude. The patient senses the negative attitude and is unhappy because he cannot get his medicine that he needs because he is sick and in need of the medicine to become well again. The pharmacist experiences the resulting negativity in the communication process with the

patient. The aggressive and negative patient is now seen by the pharmacist as an additional external barrier and the communication skills towards the “new” external barrier (patient) is negative. The negative communication skills have a negative influence on the patient as well as the non-availability of the medicine and the cycle starts all over again. There is thus a great possibility that the patient has become non-adherent because of external factors such as negative communication and a negative influence from the pharmacist as well as the non-availability of medicine.

There are several solutions to prevent the feedback loop from spinning out of control. Although the trigger of the negative feedback loop is the moment in time when the pharmacist realises the medicine is not available, the attitude, actions and inputs of the pharmacist has the greatest effect. *“The wilful decision remains with each pharmacist to cultivate a positive attitude from factors determined by pharmacy practice. This is dependent on the type of external barrier and how one perceives the barrier. If one accept that he/she cannot do anything about the barrier, they will go on with life. If the barrier is frustrating the pharmacist, this can affect pharmacist's attitude.”* The medicine is not available and that is a fact. If the attitude of the pharmacist is positive the Disposition is then positive and the consequent actions of the pharmacist also positive. *“Disposition is a character trait. Your disposition is either one that allows effective communication or one that doesn't. The attitude or relationship the pharmacist chooses with his patient enhances the ability to communicate. Your disposition affects the patient's willingness to listen to you.”* The pharmacist may now act to try and solve the problem by getting to the root of the non-delivery and request an urgent delivery. The pharmacist can suggest a generic medicine to substitute the one prescribed to the patient. The pharmacist may try and borrow or buy the medicine from another pharmacy in town and personally deliver it after hours if necessary. If no other medicine is available then the pharmacist can phone the doctor suggesting an alternative medicine after explaining the non-availability of the original prescribed medicine. The pharmacist needs to make the patient part of the solutions and inform him/her with a positive Disposition and thus positive Communication Skills of the problem. The positive Disposition and positive Communication Skills of the pharmacist may have a positive influence on the External Barriers and the problem is not a negative problem anymore *“You can still have good communication with the patient in spite of external barriers so in spite of the fact that there is no medicine on your shelf, you still have to have good communication skills with patients.”*

A positive Disposition and attitude when the pharmacist has the correct skills to communicate the problem to the patient as well as solving the problem are all actions of the pharmacist to step out of the negative feedback loop and move from the Communication Skills towards the Professionalism in the following loop. *“You must have very good communication skills sometimes*

to be able to handle your external barriers. By using good communication skills, you are bridging so you can change someone from the way you communicate. If you cannot communicate properly, you cannot break the barriers. A pharmacist can always try and improve his communication skills to reduce possible external barriers". Communication Skills thus have the ability to determine in which direction the process should move. Either back towards the External Barriers and into The Turmoil feedback loop or forwards and out of The Turmoil Loop into The Pharmacist Portrayal loop where the outcome is the Motivational Role of the pharmacist regarding medication adherence. The pharmacist has a positive Disposition but lacks the necessary communication skills to transfer the positive Dispositions and interact with patients regarding the problem. *"You must have very good communication skills sometimes to be able to handle your external barriers. By using good communication skills, you are bridging so you can change someone from the way you communicate. If you cannot communicate properly, you cannot break the barriers. A pharmacist can always try and improve his communication skills to reduce possible external barriers"* The interaction might not be successful and the process may turn backwards into The Turmoil feedback loop with the possibility of becoming a vicious cycle and a negative feedback loop.

The effect and influence of Disposition on Communication Skills branching into The Pharmacists' Portrayal Loop will be determined by the attitude of the pharmacist as part of the Disposition. Disposition may be considered as a modulating effect for the pharmacists' resulting behaviour because of his/her attitude as reaction to the external factors. Disposition might be the "fix" of the negative or vicious circle where the pharmacist realises that his/her attitude will change the negativity of the feedback loop. The availability or rather non-availability of medicine may have a profound impact on the patient's medication adherence and the pharmacist need to make a conscious decision as how to handle this external factor when the medicine prescribed by the doctor is not available to be dispensed to the patient for example. The pharmacist cognitively analyses the situation and applies the applicable (positive) attitude to behaviour that will influence the next affinity in the loop and that is the choice of Communication Skills to address the External Barriers by effective communication to the patient, explaining the situation. The pharmacist needs to analyse the potential effect of the external factor on the medication adherence of the patient. The outcomes of this decision can be either positive or negative. When investigating the sub-affinities the resultant attitude can be positive with an attitude such as care for the patient, passion for the patient and profession and walking the extra mile. The resulting behaviour can also be positive as the pharmacist is always prepared to help, service the patient, and respect the patient. The pharmacist may also be influenced by another pharmacist or colleague or even the responsible pharmacist of the pharmacy, as the authority, to assist him/her to point out the "problem affinity" and in this scenario it is the attitude (Disposition) of the pharmacist and help to

fix or correct it. The outcome of this scenario might lead to a patient who remains positive to be adherent to medicine usage.

5.4.6.2 Pharmacist Portrayal Loop

The Pharmacist Portrayal Loop comprises a four-affinity feedback loop with affinities Communication Skills, Professionalism, Information Role and Motivational Role.

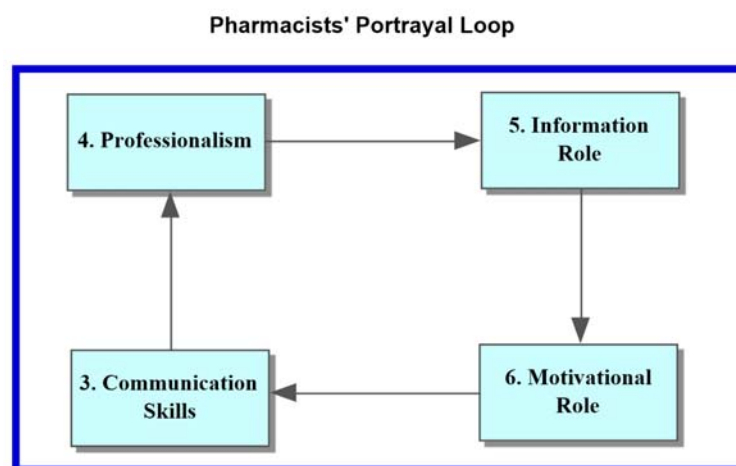


Figure 5.13: The Pharmacist' Portrayal Loop

The Pharmacist' Portrayal Loop is focused on the second part of the system and all the visible actions of the pharmacist leading to his/her Motivational Role as can be seen in Figure 5.13. Communications Skill is the starting point for this loop as well as the exist point of The Turmoil Loop as can be seen in Figure 5.12. The loop moves from Communication Skills to Professionalism and then to Information Role and ends with the Motivational Role as the primary outcome of the system. Motivational Role has a feedback relationship to Communication Skills.

When implementing the same example as in The Turmoil Loop of the patient standing in front of the pharmacist, The Pharmacists' Portrayal Loop can be explained. This is what is visible and can be seen by the patients and other people and experienced by the patient. The pharmacist is talking to the patient using the applicable Communication skills. The pharmacist is acting in a professional manner in a professional environment that strengthens the trusting image of the pharmacist. The pharmacist is sharing functional knowledge with the patient regarding his/her medicine. The Motivational Role includes all the actions to motivate the patient to adhere to his/her medicine. In the ideal reality the above-mentioned scenario might lead to an adherent patient according to the respondents as all the affinities and factors are beneficial to medication adherence.

5.4.6.2.1 Communication Skills as pivot point

Communicating Skills are the pivot between the two feedback loops namely The Turmoil Loop and The Pharmacists' Portrayal Loop. The flow of the system Pharmacists' perceptions of their Role in Medication Adherence has passed successfully through The Turmoil Loop and now enters into Professionalism from Communication Skills.

The pharmacist is considered by others and himself as professional. According to the participants who are also professionals themselves as they are all pharmacists *"the more professionally skilled the pharmacist is, the better his professional appearance and behaviour will be. Professionalism includes being able to communicate appropriately and inadequacies in communications lessens the overall professional image of a pharmacist"*

Communication skills set the table for the interaction between the pharmacist and patient and communication skills are an integral part of the professionalism of the pharmacist. ". According to the participants *"communication is the biggest single factor influencing the pharmacist's professional skills as it is in communicating with the patient that he/she realizes the importance of adhering to the advice given. If a pharmacist cannot communicate effectively no matter how professional they are, they are rendered ineffective"*. Communication Skills and the communication process are the interactive interface between the pharmacist and the patient. *"Without communication skills all your aspirations of being a professional pharmacist can be misinterpreted or totally lost. How you are perceived depends to a large degree on your communication skills"*.

If the pharmacist lacks adequate Communication Skills, it *"can be interpreted as lack of professional skills although that may not be the case. The pharmacist needs to communicate confidence in the message that the patient receives. Bad communication skills can present an un-professional impression by the patient"*. For pharmacists to be professional they need to be neatly dressed but *"two pharmacists dressed identically but with a different personality and approach could have a very different effect on a patient and their adherence. Everything is really about communication. At the end of the day, if you communicate poorly, and you are wearing a white coat, it will not help"*.

Communication is also about listening and *"listening is very important, because then people are going to experience you as being professional"*. Pharmacists need to be understood and with all the different languages in South Africa communication may not be seen as effective because *"effective communication is necessary to ensure a professional relationship. This could be a barrier in that if there is a language barrier the perception of the pharmacist would be considered*

unprofessional by the patient.” Barriers to communication exist in any context “to get buy- in from the patient you must flatten all barriers to communication. A professional delivering healthcare must have the required communication skills to meaningfully communicate with patients, especially in South Africa where the patient is a member of the diverse population”.

5.4.6.2.2 Professionalism

According to the participants, Professionalism is a *“core value - what one believes in - thus it is major driver of your behaviours, such as sharing your knowledge to assist patients.”* A very important statement is made by the participants regarding professionalism as *“professionalism influences your informational role because if they do not see you as a professional person, they are not going to consider your information as being of value.”* *“The level of professionalism of a pharmacist will determine how much effort he/she puts into educating the patient and how effective they will be in conveying this information.”* Some pharmacists think they are good communicators but are they true professionals? *“If you are a true professional you will ensure open and kind information regardless of how good you can communicate as the drive will be the profession and all that it has to offer the patient and not your verbal skills”* because *“if you are proud of your profession you would want to impart as much information to the patient as they are able to understand.”* Thus a pharmacist acting with Professionalism, and had been acknowledged as professional by the patient, will have a positive influence on the patient’s medication adherence.

5.4.6.2.3 Information Role

In The Pharmacist’s Portrayal Loop, the next affinity or element is the **Information Role** which is influenced by Professionalism. The Information Role is where the pharmacist shares the necessary information regarding the patient’s medicine, treatment, outcomes and more with the patient. It is a role or action that is compulsory and must be done as part of each and every action of medicine dispensing according to SAPC (1992). Ethical Rule1 of the SAPC stipulates that *“The failure to furnish advice or information for the save and effective use of medicine supplied by him, shall be deemed unethical or unprofessional conduct, subject to disciplinary steps by the South African Pharmacy Council”*. The pharmacist may decide to share the bare minimum information with the patient to abide by the Ethical rules or can walk the extra mile and really care and assess the patient’s information needs, monitor the correct use of apparatus and provide the information really needed by the patient. The pharmacist can also use other sources of information.

The pharmacist serves a broad community of patients and *“as a professional we have to share our knowledge to uplift those we serve. To hold all the information for ourselves, will not benefit*

the patient. Sharing the information will increase the patient's confidence that they are receiving the right medication.” The pharmacist is the source of information and “professionalism as a pharmacist means that you want to impart knowledge and give valuable information to the patient. It is important to share practical knowledge and info with the patient.”

It is crucial for the pharmacist to remain abreast of all new developments and to be in the forefront of knowledge regarding the profession and medication. *“Wanting the best for your patient makes a pharmacist striving to stay current with regard to information and advice and taking time to share appropriate knowledge. If you are professional you are going to take trouble to use your pharmaceutical professionalism to give information to a person and to convey pharmacological information, etc. “*

A participant summarises the influence of Professionalism on the Informational Role as follows: *“A highly developed sense of professionalism should translate into effective gathering of information for the purposes of conveying that information to the patient e.g. a commitment to Continuous Professional Development (CPD)”*. The pharmacist fulfilling the Information Role adequately will have a positive effect on the medication adherence of the patients as the patient receives all the most recent, recent and adequate information regarding the patient's medicine and usage of medicine.

5.4.6.2.4 Motivational Role

Motivational Role is the last affinity in The Pharmacist's Portrayal Loop and the primary outcome of the complete system. The Motivational Role is visible to the patient and other people and is influenced by the Information Role.

The Information Role is essential for an effective Motivational Role. *“A pharmacist requires the knowledge first in order to be able to sufficiently motivate his/her patient. “Because I said so” doesn't work and you need to be able to explain why it is important without being condescending but in terms a patient can understand”*. Knowledge leads to confidence and has a positive influence on the Motivational Role according to some of the participants: *“The well-informed pharmacist is more likely to convey the message with confidence and therefore more likely to positively influence the patient. Information is needed to motivate patients or to encourage them, sharing knowledge will go a long way in educating a patient to take responsibility about their disease and illnesses. If the pharmacist does not have the acceptable level of practical and functional knowledge it can influence his actions to motivate a patient to adhere as he is not knowledgeable enough.”* The participants are also of the opinion that a *“comprehensive knowledge is a pre-requisite to making good decisions about how/what you will communicate”* to

the patient thus knowledge has an indirect influence on the communication skills required for the Motivational Role.

The patient who knows what he needs the outcomes of his therapy to be, is better motivated and better adherent. *"If you can give the patient information and explain to him what the end result will be, then he will be motivated more easily to be adherent. If your information role is large and active, this will have a positive effect on the motivation role, because you just have so much more of a foundation to use for motivation."* There is a relationship between the information you provide to your patient and your motivation of the said patient: *"The better the information provided to the patient, the better the motivational role of the pharmacist can be employed. Your information that you are giving must not demotivate a patient to be adherent. Informing the patient that he/she might use a fungal cream until the fungus is gone, and have to keep on doing it for about a week. Through using that knowledge, you can tell the patient: "You were here first three days ago, and you have been using that cream now for three days. Just keep on using it. It will not look better now, but finish that tube and I promise you it will be much better. An example of using your information to motivate a patient."* According to the respondents a patient with all the necessary information will be motivated more easily and to a larger extent and will be more adherent to medication usage.

5.4.6.2.5 Motivational Role influences Communication Skills

The participants described the influence of the Motivational Role to Communication Skills, indicating that *"motivation drives all aspects of a person's work including communication. Highly motivated equals communicates well. If you are motivated to do your work right, and to do everything in your power to help and inform the patient, you will focus on improving your own communication skills or to find alternatives to put in place and to help overcome problems"*. If the pharmacist wants to improve his/her motivation they need to understand their own areas of development and *"motivation by definition should lead the pharmacist to understand his own strengths/weaknesses in communication skills and lead him to improve such to the best of his personal and professional ability. I am motivated to communicate to my patients in their own language therefore I am learning to speak Tswana to ensure that if I give directions to my patients they fully understand what I am saying as an interpreter is not always giving the information."*

5.4.6.2.6 The Pharmacists' Portrayal Loop as negative feedback loop

As mentioned earlier, a characteristic of the feedback loop is that it may become negative and then the feedback loop "captures" or holds the pharmacist captive and keeps on "spinning" increasing the negative resulting as a vicious circle where every negative aspect of the affinity

influences the following affinity negatively. Every subsequent cycle will become more and more negative and there seems to be no exit from the circle.

The Pharmacists' Portrayal loop also has the ability to develop such a negative feedback loop. The Pharmacists' Portrayal loop commences with Communication Skills as the pivot between the two feedback loops as well as the point of entrance into this Loop. Because Communication Skills influence Professionalism, *"effective communication is necessary to ensure a professional relationship. If you are confident in your communication skills you will come across as more professional. A lack of adequate communication can be interpreted as lack of professional skills although that may not be the case. The pharmacist needs to communicate confidence in the message that the patient receives"*. Bad Communication Skills can present an unprofessional impression to the patient *"because Communication Skills are integral to professionalism"* according to the participants it is important to emphasise that *"the way in which you communicate will give the patient a picture of how professional or otherwise you are. Your communication skills have an influence on your professionalism."*

If the pharmacist is not a good communicator the patients will not recognise him/her as professional. *"The way you communicate the information will be received more positive if you are professional."* The patients will then not pay attention to the Information Role of the pharmacist because of his/her bad communication skills. *"Bad communication skills can lead to good quality information being perceived by the patient as making up a story. You have to instil a sense of confidence with the patient to make information believable and trusted. A poor communicator may have all the functional information that the patient may requires to manage their medicine but due to their limited communication skills, misunderstandings ensue"* The patient will not be motivated and the pharmacist will try his/her best to motivate the patient. Because the Motivational Role is not successful and the patient is medicine non-adherent, the Motivational Role will again influence the Communication Skills negatively. The pharmacist will then hopefully accept that it is his/her communication skills that are not up to standard and change the Communication Skills or use other better and more applicable communication skills. If the pharmacist does not really inherently change and adapt his Communication Skills towards the specific patient, the patient again will not see him/her as professional and will again not accept the information and will not be medication adherent. The pharmacist might then become very authoritarian in his/her Motivational Role and may even become rude and negative towards the patient in trying to motivate the patient to adhere.

To be able to exit his negative feedback loop, it is necessary that any one of the four elements in the loop needs to change status otherwise the vicious circle will continue to spiral (spin). The most obvious element to change would be Communication Skills as it is the point of entrance into the

loop and as discussed previously *“the way in which you communicate will give the patient a picture of how professional or otherwise you are”*. The pharmacist needs to undergo practical communication skills training so that his/her competence in communication improves. The pharmacist needs to analyse his communication skills and focus on the aspects thereof that need development such as to recognise the situation and apply the correct communication skills accordingly. In other words the pharmacist needs to focus on him/herself first and then on the external factors. Only when the Communication Skills have changed and are more appropriate to the situation will the patient accept the pharmacist as a professional and will he/she accept the information and become more motivated and medicine adherent.

There may be another reason for the negative feedback loop to develop and that may be the Information Role. The pharmacist's knowledge may no longer be up to date and the pharmacist must inform the patient on medicine or therapy that he/she has no knowledge of or has forgotten. *“A professional pharmacist has to continuously develop himself with information updated to give to his patients at all times. It is part of the scope of practice to give information so a well-informed patient will utilize info and improve adherence.”* The pharmacist may not feel professional and do not impart the necessary information to the patient: *“Professionalism influences your informational role because if they do not see you as a professional person, they are not going to consider your information as being of value”*. The pharmacist will use the Motivational Role to motivate the patient but if the Information Role was not executed appropriately, the pharmacist will not be seen as professional and the patient might not accept further actions of the pharmacist such as the Motivational Role. The pharmacist will then return to the Communication Skills to pursue another communication strategy but the Professionalism of the pharmacist is still in question and not accepted by the patient. The Information Role, wrongly or poorly executed by the pharmacist, is still a root cause of the negative feedback loop turning into the vicious circle. The strategy to exit this negative feedback loop is again action on the side of the pharmacist regarding the Information Role. If not, the patient has probably left the pharmacy and when the patient returns for a collection of the medicine the following month exactly the same will happen as the negative feedback loop is still in place and the situation was not rectified in the meantime by the pharmacist. The outcome of the interaction between pharmacist and patient will again be negative with an ever worsening of the vicious cycle. The pharmacist needs to update his/her knowledge by means of several sources at his/her disposal depending on the information needed such as pharmaceutical and pharmacology textbooks, internet sources, reading topic-specific journals, attending continuous professional development courses and many more. *“A professional pharmacist would deem it necessary and important to keep up-to-date with all the changes which may occur in his / her profession and with any new medicine information by reading good journals e.g. South African Pharmaceutical Journal (SAPJ) and by Continuing Professional Development*

(CPD)". It is normal for any feedback loop such as the above-mentioned loops to function as a loop and as soon as all the requirements of each role are met the system will cycle positively to the primary outcome namely the Motivational Role. It is only when all of the requirements are not met that the loop starts to cycle negatively and thus no proper outcome is reached.

The last scenario of the impact of the negative feedback loop on the system is a worst case scenario where both The Turmoil Loop and The Pharmacists' Portrayal Loop turn into vicious cycles. The reason will be that an individual loop such as The Pharmacists' Portrayal loop becomes negative as described in the previous section. As the pharmacists then do not rectify or fix the loop, The first Turmoil Loop might be entered through the pivot point, Communication Skills, by blaming the patient as an External Barrier over which he/she has no control. The result of not applying correct Communication Skills will be a degrading relationship between them, without trust and respect and not to the benefit of both the pharmacist and the patient regarding the medication adherence of the patient. Some patients may be medicine adherent without the input of the pharmacist but the relationship between them will not be as constructive as possible. The patient might need information regarding medicine or medicine from the pharmacist at a later stage and the unresolved situation will still be "the elephant in the room" with regard to the relationship between the pharmacist and the patient.

The solution to solve all three scenarios of negative feedback loops might not be as simple as it is portrayed in the scenarios. A simple starting point of solving the problem might be for the pharmacist to first investigate and understand by means of introspection and reflection the impact of his/her own role in the negative feedback back loop.

"The minute he walks in, he upsets you and then that "bloke" messes up your whole day. All the other people that you see the whole day are quite all right, and friendly. This is now my personality again as one gets too upset about it. I must try and remember the other 44 people whom I saw and forget about that one. I said to my colleagues that let us remember an average of 6 000 patients a month. This is 12 times 6 that is 72 000 people a year that you serve. I can say in all honesty that I can count on the fingers of one hand the people who were really rude!"

In the majority of the cases the pharmacist needs to realise that he/she is not a victim in a situation out of his/her control but still has choices and is in control of the situation.

"I did a little bit of state medicine and they took it away and I was negative about that. Then the mine closed and I had to leave. The doctor dispensed himself. In other words I am a pharmacist and I am negative about that. And then the courier pharmacies came in and then they took away my chronic medications. I am very negative about that. And I know all these other things that

make me negative about the pharmaceutical profession will not influence my dealings with my client. So I try to leave my problems at home.”

Pharmacists are still professional people and with the correct attitude, Communication Skills and Professionalism, the majority of the negativity and negative experiences can be countered and turned into a positive situation. The influence of other pharmacists as colleagues, friends or even other patients might help the pharmacist to “click out of it” and stand back and reflect on the situation. The authority of the manager of the pharmacy (a pharmacist or a lay person) and the Responsible pharmacist as a senior pharmacist responsible for the pharmacy, might need to step in and interact with the pharmacist through various means to “fix” the situation of the negative feedback loop breaking.

The complete system named Pharmacists’ Perception of their Role in Medication adherence may be called an infinity loop as both The Turmoil Loop and The Pharmacist’s Portrayal Loop have a single element in the middle around which both of the loops pivot. That single element is Communication Skills as can be seen in Figure 5.10. The Zoomed-out system, as can be seen in Figure 5.11, explains also the visual representation of the two super affinities or Loops that pivot around Communication Skills and allow any affinity from any of the two Loops to directly or indirectly have an influence or be influenced by every other affinity in the system. It might also explain the nature of the motivation process of a patient that is not a once-off process but, especially in the case of long term users of chronic medicines it is a frequent re-motivation to help the patient with persistence to treatment and medicine use, especially if the patient is not adhering to the medicine treatment. Part of the re-motivation is the reassessment of the actions of the pharmacist and the role the pharmacist played in this relationship with the patient. The reassessment starts all over again at the beginning with the primary driver that is External Barriers. The reassessment of the complete system from primary drivers to primary outcomes results in adjustments by the pharmacist in The Turmoil Loop and moves along to The Pharmacist’s Portrayal Loop. The decisions made regarding Disposition, the resultant Communication Skills applied to the relationship with the patient previously, the Professionalism that the pharmacist portrayed with his interactions with the patient, the correctness and applicability and recentness of the information provided influences the Motivational Role and the process thereof.

In the following section the system will be “exercised” indicating the effect that the conditions and scenarios of one element may have on other elements and on adherence and perceptions.

5.5 Exercising the system

The system can be exercised (casting scenarios) by presuming given states of the drivers and then examining the expected results (prospective scenario). The reverse or opposite exercise is also possible (retrospective scenario) where the states or conditions of some of the outcomes are assumed. The system is again examined to see what conditions or states of the drivers could have produced the outcome. A third scenario where the impact of extra systemic influences is discussed will also be presented. In the following scenarios several uses of the system will be demonstrated.

5.5.1 Scenario 1: The Ideal Pharmacy

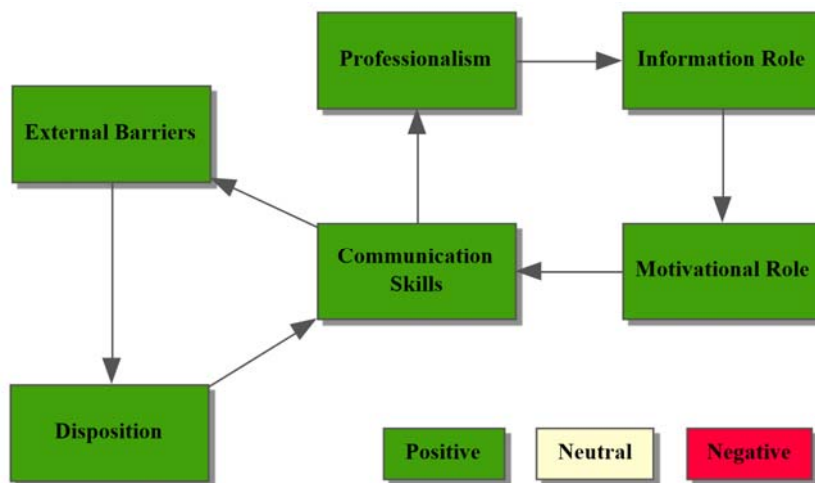


Figure 5.14: Scenario 1: The Ideal pharmacy

5.5.1.1 What if all External Barriers are positive?

In the prospective scenario the researcher asks **what if** all External Barriers are positive and are no longer considered as barriers as pharmacists have more control over them? What will the impact on the rest of the system as well as on the primary outcome namely the Motivational Role of the pharmacist be?

External Barriers are the primary driver of the system, and positive External Barriers will have a positive impact on the entire system of the role of pharmacists in medication adherence. The assumption is made that all the elements of the system that the External Barriers influence are in a neutral state and not in a negative state. If they were in a negative state the impact of the positive External Barriers would not have been sufficient to overcome the negativity of the element of Professionalism, for example. The patient as External Barrier could have been positive but if the pharmacist was not perceived as a person with Professionalism, the positivity of the patient

could not have supported the transformation of Professionalism as this is an attribute of the pharmacist himself and not of the positive patient.

The system as seen in Figure 5.14 demonstrates an ideal state. As mentioned earlier the participants identified a total of 14 potential External Barriers that could have an influence on the practice of the pharmacist. In practice any of the identified 14 External Barriers may be present.

Let's assume that the following External Barriers are all in place without any negative impact on the pharmacist or the pharmacy. Postal pharmacies do exist in this ideal world and they do deliver the correct medicine on time every month to all patients. The postal pharmacy is not necessarily an external barrier for the general pharmacist but has a fundamental effect on the patient's chronic medication adherence. The postal pharmacy becomes a barrier if the pharmacist needs to solve problems regarding the chronic medicine of the patient that the patient now receives from the postal pharmacy.

Medicines are available when ordered and no medicine is out of stock. If medicine is ordered it will arrive at the pharmacy on the given time and date. The pharmacist can plan ahead and does not have to explain to the patient why the medicine is still not available. What a wonderful day that would be!

Corporate pharmacies are still part of the pharmaceutical landscape in South Africa but they do not have all the "negative impacts", as identified by the participants, on the patients as well as on the other smaller and single owner independent pharmacies. The patients will get the best service and do not have to wait that long and will be able to have a relationship with the pharmacist of choice. The pharmacist working there will not experience all the workload but will have enough time to form relationships with patients for example.

The National Department of Health (NDoH) still exists but they do make decisions regarding the practice of the pharmacist in South Africa that is to the benefit of all pharmacists and patients.

Patients are hopefully still there, many of them as they are the bread and butter of the pharmacist but they are kind with good attitudes and they stay with a specific pharmacy. They do not distract the pharmacist in his working environment and most importantly, the patient does have enough money available to be able to pay for the medicine needed as prescribed.

The South African Pharmacy Council (SAPC) has a more positive stance amongst the pharmacists and pharmacists do not feel alienated from the SAPC

The relationships between doctors and pharmacists are positive and both the pharmacists and doctors do everything correctly and to the benefit of the patient.

Pharmacy staff are available and behave exceptionally well towards patients and make the life and work of the pharmacist a wonderful experience.

Single owner pharmacies have independent pharmacists do not feel threatened by the corporate pharmacies and they are able to make a living in smaller towns and more rural areas without the constant financial problems of economic survival.

The responsibility of the pharmacist, other than dispensing medicine and giving attention to the patient, is manageable and pharmacists can devote all their attention to their patients.

Medical Schemes are still in existence but do not restrict the patients as well as the pharmacists. Medication is more readily available for the patients and changes in medicine are not made as often. The patient's medication adherence is still high on the agenda of the Medical Schemes and enough finances are available to cover the most important medicine costs of the chronic patients. The administration related to chronic medication is understandable for the patients themselves and pharmacists do not need to spend as many hours solving the patients' problems with the Medical Schemes.

The public sector has changed overnight and the infrastructure is working and it is a service-orientated environment for patients. All the other aspects mentioned earlier regarding the public sector are in place and positively in working order; for e.g. medicines are available, pharmacists have a manageable workload and the role of the pharmacist is conducive to the Disposition of the pharmacists.

The working environment of the pharmacist, such as the systems and infrastructure, are in working order and staff are available to answer the telephones so that telephones do not keep ringing.

The managers of the pharmacy recognise the hard work and inputs of the pharmacists and the salaries are well on par with other professionals and there is not a shortage of pharmacists in the pharmacies. Enough staff are appointed to assist with the workload and large numbers of patients get professional service and assistance and are helped timeously.

If such an ideal world were to exist the **Disposition** of the pharmacists could be overall positive and the pharmacist could be a positive person with positive integration with the patients. There would be fewer negative experiences that could fuel negative attitudes of pharmacists.

The positive attitude and Disposition of the pharmacist will influence the communication process positively and the pharmacist will use the correct Communication Skills when communicating with the patients.

The pharmacist will act with **Professionalism** as the environment he/she is working in is conducive to the relationship with the patient. The pharmacist will be seen as a professional person as there will not be a need to explain to the patient why the medicine is still not available or to have to try to make excuses for the time the patient had to wait. Overall, the pharmacist is a positive professional.

Information will be given to the patient as part of the **Information Role** as there is enough time in the communication process to be able to do that and the patient is very positive and adherent and not irritated as they do not have to wait in long queues in the pharmacy.

The final outcome of the system is the **Motivational Role** of the pharmacist. As all of the External Barriers that are positive and in place the pharmacist will now have enough time to pay attention to the motivation of the patient regarding medication adherence. The pharmacist has a positive Disposition with good Communication Skills and Professionalism, he/she provides the correct information to the patient who responds positively to the Motivational Role of the pharmacist and adheres and correctly uses the medicine.

But such an ideal world is not possible and will never be and although the External Barriers are primary drivers of the system, the researcher is of the impression that positive External Barriers will still not be the only single answer for a positive and well executed motivation role of the pharmacist's system.

5.5.2 Scenario 2: "A loss of words"

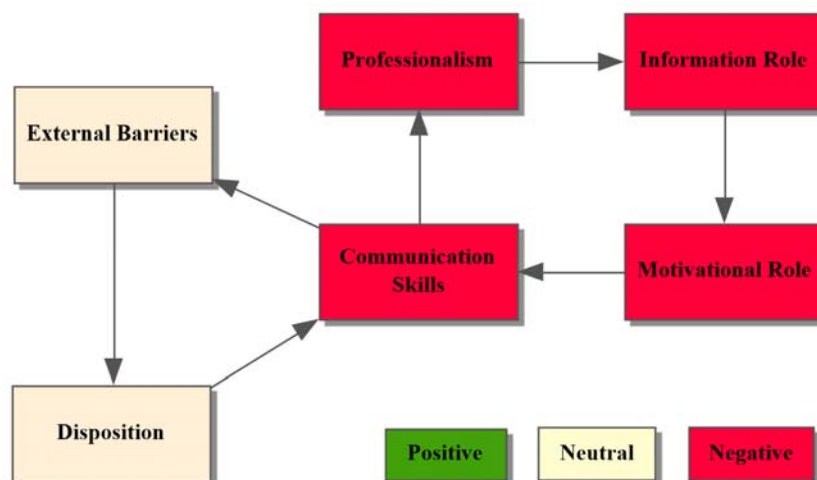


Figure 5.15: Scenario 2: "A loss of words"

In the first scenario, a rather idealized scenario was presented where positive **External Barriers** could drive the entire system to a positive **Motivational role**. The assumption was made that all

the other elements were also in a neutral state and positive **External Barriers** resulted in a positive system and a positive primary outcome of a successful **Motivational Role**.

Another prospective scenario where the status of one of the secondary drivers is known and tested by the “what if” question will now be discussed and the impact thereof on the system is discussed.

5.5.2.1 What if Communication Skills are negative?

What if **Communication Skills** are negative, in other words the pharmacist does not have the necessary Communication Skills to communicate effectively with the patient regarding medication adherence?

For the sake of this second scenario it is assumed that the **External Barriers** and the **Disposition** of the pharmacist are in a neutral state.

As the term **Communication Skills** indicated, it is a set of skills that must be part of pharmacists’ personal “armoury” in the working environment. A total of 12 personal Communication Skills which identified by the interviewees need to be developed and receive more attention. These Communication Skills are considered to be of importance for medication adherence of the patient and are needed in the communication and interactions with the patients. The skills are communicating on the correct level of the patient, suitable two way communication between pharmacist and patient, correct interpretation of body language of the patient, conflict management, provision of empathy, focusing the conversation on medicine, conveying the correct message to the patient, correct information at the correct time, handling of potentially sensitive information, management of medication adherence, good listening skills and knowing your patient.

These **Communication Skills** are needed if the pharmacist truly wants to impact on the medication adherence of the patient. If the Communication Skills are also in a neutral state, it indicates that the pharmacists will have some basic Communication Skills that may be sufficient for the average neutral to positive patient. The outcome of the pharmacist functioning with a basic set of Communication Skills with the average patient, with average expectations regarding medication adherence would have the best chance to maintain the status quo.

The **Communication Skills** influence the Professionalism of the pharmacist from the viewpoint of the patient. If the patient accepts or experiences the pharmacist as professional, the patient will also accept the Information Role of the pharmacist as positive and the associated Motivational Role.

As the reality is not one of averages, this scenario needs to be adjusted to one where the Communication Skills of the pharmacist are not up to standard. As soon as the pharmacist utilises these sub-standard Communication Skills relative to the situation and in context, the patient does not experience the pharmacist as a professional individual. The negative Professionalism will interact negatively with the Information Role as the patient will not react positively to a pharmacist with negative Communication Skills who is not professional and will not accept the Information Role or the last Motivational Role. The patient may assume that the information will not be up to standard because of the non-professionalism and poor Communication Skills and if the information is not up to standard, the Motivational Role will also not be acceptable.

The end result will be a negative Motivational Role in the system because of sub-standard Communication Skills that result in a pharmacist not being able to handle all the negative External Barriers or to overcome a negative Disposition.

5.5.3 Scenario 3 “No motivation”

In the previous scenarios the focus was on External Barriers as the primary driver and Communication Skills as the secondary driver of the system; both were prospective scenarios. In this retrospective scenario the focus is on the Motivational Role of the pharmacist as primary outcome of the system.

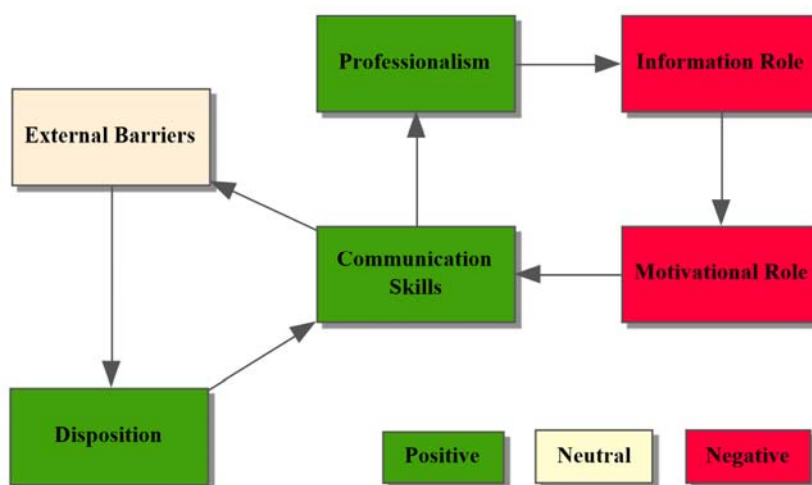


Figure 5.16: Scenario 3: “No motivation”

5.5.3.1 What if the Information Role of the pharmacist is negative?

The question may then be asked “**What if** the Information Role is negative?” What were the conditions that could have produced a negative Information Role and what will the consequences be?

The **Information Role** as affinity consists of four sub-affinities, namely Source of information where the pharmacist may get information regarding medicine for Special patients that have special needs and requiring special information, Patients who need other persons to receive the information regarding their medicine and the Pharmacist who needs to be aware and sensitive when reading the patient and situation when giving information and needs to make sure his/her own information is up to date and still relevant.

If the pharmacist does not execute the **Information Role** efficiently, then the patient will not receive the correct information and the pharmacist will find it difficult or nearly impossible to motivate the patient so the Motivation Role is also not successful. The Motivational Role is the primary outcome of the system and thus the patient will not adhere properly to the use of the medicine and the pharmacist was not successful in his/her role in the medication adherence of the patient.

As the **Motivational Role** is part of The Pharmacists’ Portrayal Loop, it is then possible that because the **Motivational Role** is negative, the **Communication Skills** will also be negative as the pharmacist tries to apply some of the Communication Skills to rectify the unsuccessful Motivational Role. The pharmacist may now question his/her own Communication Skills and implement other Communication Skills that may lead to a negative Professionalism as the negative Motivational Role is not the result of the lack of Communication Skills or Professionalism but rather a negative Information Role.

As The Turmoil Loop is connected to The Pharmacists’ Portrayal Loop via Communication Skills, the affinities from The Turmoil Loop (External Barriers and Dispositions and Communication Skills) might become negative as well. The pharmacist may now experience the patient as a negative external barrier that will have a negative impact on the Disposition of the pharmacist. The result of a pharmacist with a negative Informational Role might be that both The Turmoil and The Pharmacists’ Portrayal Loop keep on spinning as a negative cycle and might become self-destructive. In our system the pharmacist might lose the patient and the relationship between them is no longer professional and positive and the patient does not adhere to the medication use. It is still within the power of the pharmacist to rectify the negative loop by changing any of the affinities to neutral or positive. As it is the Informational role that originally started this negative

loop, it would be most logical for the pharmacist to try and change the informational role. It might not be that difficult as most pharmacists do have the basic knowledge of medicine and illnesses but sometimes need to improve a specific aspect of treatment or information regarding a new group of medicines or new illnesses applicable to the specific patient. If the pharmacist attends a short course or does some research and reads up and studies the most recent articles and data and information regarding the medicine or treatment as prescribed by the doctor, or talks to a knowledgeable colleague, his/her informational role will mostly improve significantly so that the negative informational role will become positive. The pharmacist might have a negative loop experience with only a specific patient and by updating his/her knowledge and information, the new information and knowledge and skills can be applied as soon as the next interaction between the pharmacist and the patient when the next repeat of the chronic medicine is collected.

A change in the Informational role from negative to positive will have a positive effect on the Motivational Role and a positive Motivational Role will have a positive effect on the Communication Skills that will lead to both The Turmoil and The Pharmacists' Portrayal loops turning positive!

5.5.4 Scenario 4: The impact of an extra systemic factor on the system

The impact of any extra systemic factor can now also be explained or predicted by making use of the system. If the system of an individual pharmacist or of a collective of pharmacists working in a specific pharmacy or of all the pharmacists in the profession of the country is challenged with a new and previously unknown factor, the possible impact of the factor on the perceived role of the pharmacist in medication adherence in South Africa could be analysed.

The new factor will enter the system as an External Barrier (negative) or a positive factor in The Turmoil loop. The factor will have a positive or negative effect on the Disposition of the pharmacist. As previously explained the Disposition of the pharmacist - negative or positive - will have an influence on the Communication Skills of the pharmacist with the patient. The Communication Skills as the pivot between the two loops might keep both The Turmoil and Pharmacists' Portrayal Loops positive and thus a positive impact on the Motivational Role that might have a positive impact on the adherence of the patient.

5.5.5 Conclusion of scenarios

The External Barriers are very important to the pharmacist as he/she does not always have control over the barriers. If the pharmacists have developed good and special Communication Skills they may still save the day for the patient regarding the medication adherence as a negative situation may be tuned away from disaster to a possible neutral or even positive outcome.

The pharmacist's Information Role and the actions and skills and knowledge associated, must be in place and continuously be developed if the pharmacist needs to stay abreast of the newest relevant medicine and treatment-related information to be able to motivate the patient positively so that the patient adheres to the medicine therapy.

5.6 Predictions, Interventions and Practical implications

In the following section some potential problems and solutions based on the input of the participants and the interpretation of the researcher are identified in the feedback loops of the system. It is important to keep in mind when finding solutions for a problem, that all the elements work together as a phenomenon and that the assumption of a one-to-one causation of a problem and the focus on a single solution must be avoided at all costs.

Findings of this research can help the South African pharmacist to better understand his /her role in Medication adherence of patients and he or she can implement the identified solutions.

5.6.1 The Turmoil Loop

In The Turmoil loop, External Barriers is the primary driver of the system and the point of entry to the system. Therefore it has an influence on the rest of the system through Disposition and Communication Skills. External Barriers can have a "large" impact on the system if, for example, when there are no medicines available then the pharmacist must act to find a solution for the problem. It may mean that the patient will not get his/her medicine from the pharmacist on that day and cannot therefore be adherent although the pharmacist acted with Professionalism, used good Communication Skills and the patient has received the necessary information regarding the use of the medicine and is motivated by the pharmacist. Other External Barriers may have a far lesser impact on the immediate needs of the patient such as the impact of the National Department of Health (NDoH) or the South African Pharmacy Council (SAPC), for example, that will not have any impact on the patient when receiving the dispensed medication or information.

The external barrier may have an impact on the attitude of the pharmacist and be responsible for a sub-optimal attitude that negatively influences the communication and communication skills of the pharmacist when in interaction with the patient with a final negative impact on the relationship between them.

The following table (Table 5.9) indicates some of the challenges the participants or pharmacists faced associated with The Turmoil Loop as well as the solutions proposed by the researcher or by the participants themselves.

Table 5.9: The Turmoil Loop problems and possible solutions

Problem	Solution
1. The medicine that I must dispense to the patient is not available	1. Solve and prevent the non-availability of medicine problem by being an ingenious and involved pharmacist.
2. How do I keep the patient content if he/she cannot get the medicine from the pharmacist?	2. Help the patient to overcome the burden
3. Difficult and unfriendly patients	3. Surprise the patient by listening and reflecting with empathy.

5.6.1.1 Problems and solutions associated with External Barriers

The respondents have identified 14 different External Barriers some of which have a much larger impact on the medication adherence of the patient and the roles of the pharmacist associated therewith. All 14 External Barriers could be discussed further as problems and solutions could be developed but the researcher will discuss the availability of medicine and the patient as examples of External Barriers as problems and solutions for associated problems will be offered. The External Barriers may also be divided into those barriers that the pharmacists are able to do something about or those that they should just accept because they cannot be changed.

5.6.1.1.1 Problem 1: The medicine that I must dispense to the patient is not available

If medicine is not available, it may be due to many factors. The problem can be with the Pharmaceutical Companies that do not manufacture a specific medicine because of problems with *inter alia* raw materials or problems with labels or testing of medicines. Ultimately that specific medicine is not on the shelves of the pharmacy. One of the respondents summarises the non-availability of stock as follows:

“For me this is one of the biggest reasons why medicines go out of stock on pharmacy shelves in South Africa.”

The respondents reported that the non-availability of stock could also be because of other reasons such as deliveries of stock that are not on time, suppliers of medicine that are out of stock and cannot supply to the pharmacist, policies of pharmacies that prevent them from keeping certain medicines.

“Here and there you have a company with whom one has a direct account and if you order today you would only receive the order after seven days. Late deliveries sometimes takes a company five days to deliver in bulk.”

"One of my biggest problems is then of course the availability of the products from the providers and the product is not available anywhere".

"Your large groups have already started with a list that says they only keep certain medicines and for example only stock Pharmaceutical Company A and B, and nothing further."

"Especially at the beginning of a new year when there are always a lot of products out of stock just like that. This past month all the eye ointments were not available."

Medicine that is not available when the patient needs it and the pharmacist cannot supply the medicine is a great problem to the respondents (pharmacists) and they articulate the impact of this problem as follows:

"This becomes a problem and a pharmacist really struggles".

"This is now something that is out of the hands of the pharmacist and it is true that the doctors don't understand this, but there is nothing that one can do about it."

"Do you know, we have an average of 100 items a day that are out of stock and then it is important medicine like Medicine Y, a blood pressure medication?"

"Corporate Pharmacy A now does not have it. If you don't have something, you don't have it."

"Then you cannot expect of the patient to be compliant, because there is no medicine".

Shortages and non-availability of medicine are global problems and many countries are affected. It is also not a new and recent problem but was reported in the USA for example more than 15 years ago (Gray & Manasse, 2012:158). An increase in the median hours per week that a pharmacist spends on managing medicine shortages increased from three to nine amongst members of the American Society of Health-System Pharmacists (Kaakeh *et al.*, 2011:1817). In European pharmacies, medicine shortages are associated with clinical and financial burdens and additional workload for the hospital pharmacy because when medicine cannot be delivered or supplied to the patient at the moment of demand, every stakeholder in the healthcare supply chain is affected (Pauwels *et al.*, 2015:10). Medicine shortages cause an increase between 1% and 5% in error rates in hospitals and up to a 60% increase in creating unsafe conditions for patients and staff in hospitals in the South-eastern United States.

Medicine shortages in the South African public sector have local causes but are also part of the global and connected pharmaceutical workplace (Gray, 2014:212). The National Department of Health (NDoH) of South Africa is urgently trying to find solutions to overcome the medicine

shortages which threaten the lives of thousands of patients and have become a national crisis (Bateman, 2013:1; Andrews, 2017:01).

The South African pharmacists are part of the global problem of medicine shortages and where the pharmacist is responsible for the dispensing of the medicine he/she must deal with the problem. As there are no medicines available the role of the pharmacist in the medication adherence of the patient will be challenged.

5.6.1.1.2 Solution 1: Solve and prevent the non-availability of medicine by being an ingenious and involved pharmacist

The respondents themselves presented some practical solutions to the problem of non-availability of medicine. A managerial solution to problems with deliveries of medicine could be *“then you rather order from your providers who deliver daily”*.

A well-known solution amongst pharmacies is to borrow from other pharmacies that do have the medicine in question in stock:

“Sometimes if you don’t have stock at the moment, you quickly borrow from another pharmacy. Then you could fetch it quickly and deliver it.”

The pharmacist will firstly make sure that he could not find that specific medicine anywhere else other than from his normal suppliers. The pharmacist will also find out from the patient whether there is still any medicine available at home that had not been used. The pharmacist may even suggest that the patients use more or less of other strengths of the medicine, if available, so that the patient still has the same intake of the active ingredient. It is a solution but not always without other problems:

“She drinks 5 milligram three times a day and I can’t get hold of Medicine P in 5 milligram. So now I have to give her two and one milligram tablets, that means she now has to take two of the two milligram tablets and one of the one milligram tablet, three times a day. It comes back to patient adherence again. This means that where she only had to take one tablet, she must now take three of the things three times a day and she has to take a handful of other pills as well.”

If the medicine is out of stock for a longer time span and no longer available in South Africa, the pharmacist could first suggest the use of generic medicine. If a generic equivalent is not available, the doctor of the patient needs to be consulted. The options taken by the doctor might be a change in the route of administration as with dermal stickers to oral tablets or a totally different medicine needs to be prescribed to the patients.

Some patients take matters in their own hands and start to use natural medicine for example for hormonal treatment.

“Medicine X that has now been out of stock for a long time and some people went onto hormone stickers for a while and some simply stopped hormone therapy and tried to use natural treatments for that time to keep hot flushes and that type of thing under control but everybody had a different approach. With Medicine X, doctors were consulted all the time as we asked “Must we give something else in its place, or what suggestions do you have?”

Another solution might be to *“recognise the external barriers beforehand and prevent it from happening”* but as the non-availability of stock is not always predictable, it might only work in certain situations. A pharmacist can also develop good relationships with representatives so that they have access to the most recent information regarding the availability of medicine to stay on top of his/her game and be an informed pharmacist to the benefit of the patients.

“Then of course it is where the role of the reps is very important and I have to tell you that they are not very good because when they can sell you something they are here every day, but when there is a problem with their products, they do not keep you informed and this is a pity for me.”

The Canadian Pharmacists Association (2010) developed a guide for pharmacists to assess medicine shortages as well as to manage the patients in such an event. An algorithm was presented to simplify the management of medicine shortages through three main steps:

- Exhausting every avenue to supply the medication
- Assessing how critical the medicine is for the patient
- Selecting alternative medication, if required (Canadian Pharmacist Association, 2010:3)

The pharmacist and his pharmacy needs to have a communication strategy with the health care team so that all the parties know what medicines are affected and why and how long the shortage is expected to last. Pharmacists can, by staying up to date, developing management strategies and recommending alternatives based on real evidence, provide patients with safe and timely treatment (Claycomb, 2014:4). As medicine shortages become commonplace, the hospital pharmacists become experts in implementing strategies and contingency plans to make sure patients do get the medicines that they need. “Pharmacists have done such a good job of this that we are masking this horrible manufacturing failure that’s going on” according to Erickson, (2016:7).

Pharmacists are uniquely qualified to lead efforts to minimize the impact of medicine shortages on patient care according to Caulder *et al.* (2015:279). The pharmacist can be utilised in health

care institutions to assist in managing and solving the shortage of medicine. Pharmacists play an important role even at ward level in hospital by supporting the ward staff to effectively manage the ward medicine stock at all times (Mayimele *et al.*, 2015:36). Medicine is the responsibility of the pharmacist throughout the hospital and by playing an essential role in the ward stock management cycle, a shortage of medicine *inter alia* in the wards should not occur and patients should have their medicine when needed.

5.6.1.1.3 Problem 2: How do I keep the patient content if he/she cannot get the medicine from the pharmacist?

Some patients are very unhappy if their medicine is not available. The pharmacist may be able to solve the problem by sourcing the medicine in question for the patient the same day or the next day or maybe only in a week's time. In most of the instances the patients will still not be happy and understandably be upset as they still do not have their medicine.

The pharmacist also might feel uneasy about the situation as they strive to keep their patients happy and content all the time by ensuring that the patients have their medicine when needed.

"We do not always have stock and what do you do under those circumstances? How do you handle it? This is one of the biggest problems to keep everyone happy".

"The people get highly irritated and they won't have medication to use at all for those five days if the other pharmacies are waiting for their stocks as well."

The Pharmacist feels responsible for the outcome of the patient.

5.6.1.1.4 Solution 2: Help the patient to overcome the burden

The pharmacist must help the patient to overcome this burden that his/her medicine is not available. The pharmacist needs to communicate the situation to the patient and still keep the patient positive by distancing him/herself from the problem and giving attention to the patient

A rather philosophical solution was provided by one of the respondents:

"Often one has to word things differently given the impact of an outside vector - this does not change what is communicated only how it is communicated. You have to adapt to external influences and hence communication skills require flexibility. External barriers determine our way of communicating information and how we need to react accordingly."

"Then I want to stress again, it is perhaps how you as the pharmacist say a thing that leads the patient to say: "No, fine, I understand." "Sir, this medicine is out of stock, but we will quickly call

your doctor and if you do not have the time to wait now, please come back later". Just give the patient all the options and then he will feel that he is part of the process than to just say to him: "Listen, I can't get it now, it is not available."

Effective communication and cooperation are essential when medicines are not available and a good relationship between pharmacist and patient is essential to develop contingency plans so that the patient's drug-related needs are met during the non-availability (Canadian Pharmacist Association, 2010:10). The following points may help your patient to overcome the burden:

- Reassure the patients that as soon as that the medicine is available again they should be able to obtain normal supplies
- If a specific pharmacy encounters a medicine shortage, there are other pharmacies or sources where the medicine can be collected.
- Encourage patients to reorder their chronic medicine 5 to 7 days before their medicines are finished so that the patient's medicine supply do not run out.
- Patients should be advised not to leave all their medicine at home or at office, but to carry a few doses of emergency supply with them.
- When your patients are travelling, they should take a few extra days' supply with them on the aeroplane for example.
- It is important that your patient should realise that stockpiling is not necessary and they must not order medicine over the internet.
- Reassure your patients that the pharmacy supply chain has shown previously to recover from many different situations and most issues can be quickly and efficiently recovered. (Canadian Pharmacists Association, 2010:10).

"Those old people just travel around, and they easily take three months' medication at a time. I am certain that the uncle actually still has ten days' medication left. This is just one sheet. Somewhere at home there is still a sheet of this medication. It is that kind of interest in terms of monitoring, and monitoring together with the patient."

The pharmacist needs to acknowledge the patients' feelings and experience and frustrations by means of empathy because the patient may feel discouraged or angry and many times they simply need to know that others understand their feelings and experience although the pharmacist will not be able to solve the initial problem (Beardsley et al., 2007:60).

"So you must understand that the man standing in front of you is a little unhappy and he is not all smiles. Then you have to understand that is what it is all about if he therefore should appear a little short with you or rude you must have empathy. Try to understand from your side."

The pharmacist's first instinct is to avoid the issue of the emotions of the patient and before the communication or counselling of the patient commences, the patient's emotion around the non-availability of his medicine must be dealt with first (Rantucci, 1997:230). Because of the scientific training of pharmacists, they are analytical in their problem-solving and may rather focus on the problem of the medicine that is not available than on the subsequent emotions of the patient. The pharmacist should give the angry patients the right to feel angry or frustrated because his/her medicine is not available and listen to the patient in a non-judgemental way. The pharmacist must never return the anger or aggression of the patient but rather interpret the patient's anger as feelings of helplessness (Johnson, 2000:307). Patients tend to calm down when you simply listen and acknowledge their experience instead of offering solutions and excuses. The pharmacist should empathise with the situation of the patient by conveying to the patient that they understand their thoughts and feelings, do care genuinely and the patients feelings are accepted without judgement (Beardsley *et al.*, 2007:50). Arguing and trying to solve the problem is not appropriate and the pharmacist should rather encourage the patient to discuss any problems and complaints by means of active listening, according to Rantucci (1997:230). The patient can now clarify what the reason is for his/her emotional state and it may be something totally different than the non-availability of medicine that the pharmacist initially accepted as the reason.

Now that the pharmacists understand what the real issue is, explanations and suggestions in the patient's interest can be provided. The pharmacist can provide positive messages to the patient and end the communication on a positive note and positive solutions to the problem at hand (Rantucci, 2007:232).

Community pharmacists in Italy indicated that key endogenous factors responsible for 75% of their performance were competencies and skills such as empathy, communication and relationships with their patients in contrast with only 20% of the pharmacists in the study who considered academic qualifications to be an important aspect (Moja *et al.*, 2013:7). Technical training is important in order to improve the development of relationship skills of pharmacists as well as the personal, emotional coping strategies of pharmacists as empathetic, patient-orientated care is associated with better health care outcomes in patients (Moja *et al.*, 2013:1).

Job-related stress of hospital pharmacists in South Africa was found to be caused by a lack of resources such as *inter alia* experiencing negative attitudes towards the pharmacy, inadequate equipment, insufficient staff to handle the workload and non-availability of medicine from the suppliers (Rothmann & Malan, 2011:9). It is not only job-related stress caused by a lack of resources that contributes to burnout among hospital pharmacists, but also the (negative) coping strategies employed by the pharmacists such as avoiding dealing with the problems (Rothmann & Malan, 2011:10) As the availability of medicine will always be a problem, the pharmacist needs

to develop the necessary skills and competencies how to cope with this situation on a personal level, to the mutual benefit of the patients' health and the pharmacist's emotional well-being. Hospital pharmacy management in both the public and private sector has a responsibility to intervene to increase the well-being of the South African hospital pharmacists by addressing the stressors that are mainly responsible for the unfavourable working environment (Rothmann & Malan, 2011:10).

5.6.1.1.5 Problem 3: Difficult and unfriendly patients

The pharmacist has to deal with different kinds of patients all the time and in some instances the patient might be difficult, impatient, unfriendly or even aggressive.

"He wanted to hit my intern with his fist here yesterday. They become rude about the fact that we did not have stock."

"They come in and say they want that, they want bandages, nappies, cleaning material and they want so much and they want, want and want."

"But that stuff does not work for me or the stuff that you give is rubbish or you give us the cheapest stuff."

"They are in a hurry, and when they get to the pharmacy they don't want to wait and they sort of tap, tap and tap."

"It does take some time to mix stuff, to mix substances. If you become aware that this patient is in a hurry, this is when you can easily make a mistake."

The pharmacist may have difficulty in dealing with the angry, frustrated, disruptive and difficult patients, to still be calm and professional in order to be able to be competent and dispense the medicine with the greatest care. The pharmacist must stay focussed on the task at hand and not be distracted from it, but needs to take care of the problematic situation in the pharmacy, namely the difficult patient.

5.6.1.1.6 Solution 3: Surprise the patient by listening and reflect with empathy.

A pharmacist described how she deals with the impatient patient:

"When the children are impatient I just remain calm or I feel like pulling a veil across myself. They cannot see what is going on inside as I think by myself they have just waited three hours for the doctor, and now they don't want to wait for you so that you can just carefully dispense. "

But the question is whether it is the correct solution to the problem of dealing with a difficult patient?

Firstly the pharmacist needs to accept that difficult patients are a part of the profession of pharmacy and may be seen as an obstacle in the pharmacy profession. But the obstacle can be removed successfully so that the pharmacists can provide optimal service to all the patients. The way to deal with this obstacle is to *inter alia* develop new skills to be able to handle the difficult patient correctly and successfully. The skills that need to be developed is relationship skills with the patient as well as personal emotional coping strategies according to Moja *et al.* (2013:7). Relationship skills include the capacity to establish a sound relationship between the pharmacist and the patient with the focus on patient-centred care (Moja *et al.*, 2013:7). Counselling and effective communication are necessary to develop the empathetic relationship with the patients. The reader might remember that the same skills were mentioned in the previous section where the pharmacists needed to help ease the burden of the patient that could not receive his/her medicine. The basic principle of the solution of the problem is a patient-orientated empathetic relationship between the patient and the pharmacist where the pharmacist has all the necessary skills to maintain such a relationship. The pharmacist needs to maintain all the Communication Skills such as listening and then reflection with empathy and not be judgemental.

Whatever the patient's reason is for being unfriendly or rude, it must still be taken into account that the patient is usually sick and does not feel well, as otherwise the patient would not have been in the pharmacy in the first place. "The patient's experience of illness is affected by his/her background of emotional reactions to previous illnesses and by patterns of behaving and coping developed during his/her lifetime" according to Rantucci (2007:31). The result might be a patient with anger or frustration.

Empathy is the reflection of the understanding of the feelings of the patient and that you care without a value judgement (Beardsley, 2007:52; Higdon, 2005:36; McCorry & Mason, 2011:60; Rantucci, 2007:154). As soon as you reflect to the patient how you as pharmacist perceives his/her experience, the patient knows that you are listening to him/her and calms down. Empathy is a non-negotiable communication skill that pharmacists need in their tool kit and the skill of empathy can be learned by the pharmacist through empathy-specific training and development programs (Oldfield, 2015:1)

The pharmacist can find several articles and documents on the topic of how to handle an angry patient or how to deal with the angry patient when doing a search on the Internet. The information and tips and examples are understandable and can greatly help the pharmacist who has problems with dealing with the difficult patient.

Patients do not listen to the pharmacist because you are telling them so or because you are friendly and professional, but rather because you demonstrate to them that you are listening to what they are saying.

Interpersonal communication skills with the focus on empathy are used on a daily basis by pharmacists in counselling patients and in communication with doctors and are therefore important for the pharmacists (McDonough & Bennet, 2006:1). Pharmacists need to recognise anger and aggressive actions to be able to adopt a manner of communication that still respects the other person's emotions while managing the pharmacist's own feelings (interpersonal communication skills) (Rahim & Shah, 2010:1). The negative interpersonal incidences such as anger and aggression may cause psychological distress and this stress may be lessened via intrapersonal self-regulatory stress coping strategies according to Higuchi *et al.* (2017:1). It is therefore important that pharmacists learn how to develop the necessary interpersonal behavioural skills conducive to empathetic interactions with patients, as well as intrapersonal self-regulatory and stress coping strategies, that may help them to cope with psychological distress during encounters with some patients (Riess, 2010:1605). If the pharmacist does not know how to deal with his/her own anger and frustrations (intrapersonal personal skills), then the pharmacist will not be able to deal effectively by means of his interpersonal skills with the patient's anger and frustration during communication or counselling.

If the pharmacist finds it impossible to deal with anger, aggression and a difficult patient, the pharmacist should rather find an alternative working environment in the pharmaceutical sector where he/she still can practise the pharmacy profession without the contact with the patients.

5.6.2 Problems and solutions associated with Communication Skills

The affinity Communication Skills is the pivot of the system and three problems were identified and the solutions thereof will also be presented. At first a summary of the problems and possible solutions follows in Table 5.10 below.

Table 5.10: Communication Skills problems and solutions

Problem	Solution
1. Pharmacists expressed their lack of competency and knowledge regarding the following communication related skills: • Correct level of communication with the patient • Two-way communication between pharmacist and patient • Read and interpret the body language of the patient	1. Pharmacists need theoretical training in, and the development of competency in the following Communication Skills.

Problem	Solution
• Conflict management in the pharmacy between patient and pharmacist • Empathy in communication • Focus the conversation with the patient on medicine • Correct message to be carried across • Correct information given at the correct time • Potentially sensitive information to be told to the patient • Listening skills in communication with the patient • Knowing the patient better	
2. The patient and I am come from different cultures and we do not understand each other when I need to communicate with my patient	2. The pharmacist must learn to speak the patient's language or make use of communication aids.
3. The pharmacist does not know how to express him/herself with the correct terminology when describing the optimal or sub-optimal use of communication skills	3. Pharmacists need to undergo refresher courses in basic communication skills or underwent training and development of communication skills.

5.6.2.1 Problem 1: Pharmacists expressed their lack of competency and/or knowledge regarding the following skills.

The participants of the interviews identified a total of twelve “skills” that they deemed important to them as pharmacists in their role in medication adherence.

- The skills to determine the *correct level of communication* needed by the patient.

“The pharmacist must learn the skills to be able to read his patient. To know that the patient is now not understanding a word I am saying, because I am pitching too high, or I am pitching too low. The pharmacist must communicate with the patient at the right level.”

“If you as a pharmacist cannot relate to a patient and communicate at a level which makes the patient comfortable then you have already lost the chance to make a difference. To get buy in from the patient you must flatten all barriers to communication. A professional delivering healthcare must have the required communication skills to meaningfully communicate with patients, especially in South Africa where the patient is a member of the diverse population.”

“You all need to be on the same page to communicate effectively, and communication is needed to motivate. Communication at a level that will make you patient understand why you are dispensing the medication, once you see the patient doing better through the increase of adherence it will increase the motivational role as a pharmacist.”

- There ought to be *two-way communication* between the patient and the pharmacist for effective transfer of information.

"It must also not sound as if the pharmacist is reciting a poem. It has to be a conversation that is flowing between the pharmacist and the patient. Otherwise you could just as well have put a flier in the patient's hand and said: "go and read it at home." Communication involves speaking and listening. The pharmacist must communicate the information and then listen to what the patient is saying. Does the patient have questions? Are there things that he does not understand? Something that might be unclear? It is that two-way discussion of speaking and listening between the pharmacist and the patient. It is also asking questions? It is not just speaking the whole time."

- Patients "speak" loudly through their body language

"It is a skill of the pharmacist to be very observant. I think there are many whom you can interpret in a pharmacy in terms of a health problem that can be interpreted through just looking at the patient's body language. "Because you know if you see somebody who is very pale, you know that he is ill, never mind what language he is speaking. Ask him to sit down and you will try something. So it is not only the language, the physical transfer of words, you also have to look at the body language, and you can see this man is light-headed and looks as if he is going to fall down. So let him sit and take his blood pressure so long while he is trying to get his words together."

- There will always be some level of conflict between the pharmacist and the patient and the management thereof needs a certain set of skills to be learned by the pharmacist

"The patient comes back after two days with a statement from the Medical Scheme. The people usually arrive in a very angry mood and they are angry because you as pharmacist has stolen his money. You explain it as follows to him: "No, sir, how the state actually works is that they showed you that we tried to claim, but you can see nothing has been paid. So you should really get a statement in about two days which will say that it has been reversed. Do you understand?" This patient arrives in a state of anger and I did not even serve him that day so it requires very good communication skills. At the end of the day you still need to retain that person as a client and you do not want to chase him away in fury and never see him again."

- To show empathy with the patients is one of the first communication skills the pharmacist needs to be competent in.

"If you demonstrate empathy during these communications, then your patient experiences more of a compassionate situation. This can also perhaps motivate him a little when it comes to adherence. Empathy is only one factor which can be used in communication skills and can also be used to play a role or have an influence on adherence".

- Pharmacists try to keep the conversation with the *patient focussed on the medicine* in the short time available for interaction.

“One of the communication skills that is quite important for me is that the pharmacist must, in a professional way, remain in control of the communication process. Developing that skill only comes with experience. Where for example you had a patient who came in and just kept talking, and the pharmacist does not get the opportunity to get to the important points, he can in the end forget. You get side-tracked, and what is important in the communication skill is that you have to master the technique of remaining in control of the discussion. You have to stop the patient without insulting him when the discussion starts going off the tracks. The typical problem that I have experienced is that you normally work under pressure, especially if it is a busy pharmacy and you do not have time to listen to frivolous stories. If you really want to promote adherence, then you have to get down to the nitty-gritty of what is important for adherence. If you lose control of the communication process, time passes and after a while you simply have to stop the instructions or the consultation.”

- The pharmacist always needs to be aware of what words are used in communication in order to convey the *correct message*.

“It is about your communication with the patient regarding adherence. Will he listen to what you are saying, how are you going to communicate it? You can lose a patient simply by saying a wrong word to him.”

- Communicate to the patient the correct information needed at the correct time

“If you are working with a patient and you have to convince him to cooperate or to satisfy adherence, then you have to exert some measure of pressure – they call it communication pressure. It is the same as ordinary persuasive skills because if you put too little pressure the patient might not get the message, if you give too much you will confuse him, or perhaps affront him so that he experiences a degree of disharmony. This comes from experience, it is a skill that a pharmacist should learn, to communicate the right things at the right time. One can communicate too much but also too little”.

- Try to give potentially *sensitive information* without offending the patient.

“So in time one learns to say: ‘Aunty, just hear me out. I just want to mention it. But I know it is not really a problem with Aunty, but do avoid alcohol. Everything containing alcohol.’ So you don’t talk about alcohol but rather talk about all alcohol-containing products. It is also important how one communicates this. Social drinkers perhaps do not realize that they should not drink

alcohol with certain medicines and they will get quite ill if they do it. You cannot simply say to the patient: "Now don't go and drink with it." The patient might just think that you regard him as an alcoholic. You have to be careful what you communicate and how you communicate it. There is, however, important information that the pharmacist should not neglect. He has to bring it to the attention of the patient. Come back to communication skills and know your patient."

- The best communicator has *the best listening skills*. Do not jump to conclusions before the patient has finished his/her story.

"Yes, it is very important because now you hear diarrhoea and you already think Medicine I but first listen careful to what the symptoms or perhaps the cause are. It can work both ways, because the patient hears one thing and then he comes back and asked: "What was it again that you said I should not do any more, or what should I do?" The pharmacist tends to work so much with those medicines that he does not listen when the patient still has additional questions. You are already so conditioned. Communication is a large part of what you do in counselling but often it is a more a matter of giving information without listening to what the patient has to say about his condition, or what he would like to hear."

"Listening is very important, because then people are going to experience you as being professional. It is important to listen to and draw underlying detail from the patient who has a problem before the pharmacist can come to any conclusion. Healthcare working mainly with patients, interacting with patients, necessary to develop communication skills to allow fruitful interaction. If one cannot communicate/ listen, one can feel frustrated easily and lose patience, loose patient also".

Good listening skills were considered as the important element of communication amongst South African pharmacists while communicating with patients, according to Van de Poel et al. (2015:197).

- Build a professional relationship by *knowing your patients* when they are not patients.

"These are skills and they come with time. Without ticking points 1, 2 and 3 to 7 within the counselling protocol while I as the pharmacist am talking to you, it is out of the questions that I ask you what your need is, and I do address all those needs. At times it begins with a discussion. If one listens from beginning it might sound like chit-chat and so on outside the field of medication, and if a person has the need to begin to feel comfortable in such a way, it is the way to approach her and to help her feel comfortable. If you remember what the patient got the previous time, and you touch on it, even if it is only about a child who broke a leg, and you begin the discussion with that, then he feels that you care. Then they tend far more easily to open up and really address

their needs within what you discuss with them. You can also see when somebody is in a hurry, and do not then chit-chat. Give him his medicine and tell him that you understand. So if it is not new medication, you can simply just give it to him, because he is really in a hurry and other times you can take a little more trouble.”

Some solutions to the problem are presented in the next section.

5.6.2.2 Solution 1: Training and development of identified skills

Motivation for, as well as a process towards a possible solution for the training in and improvement of communication skills is presented by a respondent:

“Motivation drives all aspects of a person’s work including communication. Highly motivated equals communicates well. If you are motivated to do your work right, and to do everything in your power to help and inform the patient, you will focus on improving your own communication skills or to find alternatives to put in place and to help overcome problems. Motivation by definition should lead the pharmacist to understand his own strengths/weaknesses in communication skills and lead him to improve such to the best of his personal and professional ability. I am motivated to communicate to my patients in their own language therefore I am learning to speak Tswana to ensure that if I give directions to my patients they fully understand what I am saying as an interpreter is not always giving the information.”

“You must have very good communication skills sometimes to be able to handle your external barriers. By using good communication skills, you are bridging so you can change someone from the way you communicate. If you cannot communicate properly, you cannot break the barriers. A pharmacist can always try and improve his communication skills to reduce possible external barriers.”

The basic communication skills in general that every pharmacist should have are the following:

- listening (Grobler *et al.*, 2005:140, Cole, 1993:145, Barker & Gaut, 2002:89, Moss, 2012:178, McCorry and Mason, 2011:44, Rantucci, 2007:167, Beardsley *et al.*, 2007:51);
- attending and responding by means of reflecting feelings (empathy), (McCorry and Mason, 2011:47, Beardsley *et al.*, 2007:52, Rantucci, 2007:59, Moss, 2012:101, Cole, 1993:30);
- reflecting content (paraphrasing)(Moss, 2012:18, McCorry & Mason, 2011:46, Beardsley *et al.*, 2007:52, Rantucci, 2007:98);
- clarifying (Moss, 2012:19);
- minimal encouragement (Moss, 2012:108) and

- summarizing (Beardsley *et al.*, 2007:52, Moss, 2012:18).

The pharmacists requested or indicated in some instances more specific communication skills. A possible solution to each of those communication skills related problems will be presented. In some instances the solution is not particularly specific but rather the training and development, as well as experience in some of the basic communication skills.

- The skills to determine the *correct level of communication* needed by the patient

The interactive patient consultation process differs from the more traditional approaches. The traditional approaches of medication consultation have been the providing of information to the patient where the pharmacist is the person with the knowledge and the patient the passive learner. The interactive patient consultation process's goal is to verify that the patient understands how to take the prescribed medicine through the needs-based approach (Gardner *et al.*, 2002: v). "In the interactive approach to patient medication, the pharmacist uses direct, open-ended questions to see how much the patients know about their medications, The pharmacist fills in the knowledge gaps as needed and then concludes by asking the patient to summarize" (Gardner *et al.*, 2002:5). Through this process the pharmacist will be able to determine the correct level of communication needed by the patient.

- There ought to be *two-way communication* between the patient and the pharmacist for effective transfer of information

The patient-pharmacist interaction should consist of an exchange of information, feelings, beliefs, values, and ideas between the patient and the pharmacist. It should not consist of a one-sided lecture by the pharmacist, but rather a conversation between two people (Rantucci, 2007:67). The implementation of the interactive patient consultation process as described in the previous paragraph, will help the patient to be able to give his/her inputs to the communication taking place resulting in two-way communication.

- Patients "speak" loudly through their *body language*

Beardsley *et al.* (2007:29) indicated that non-verbal communication (unspoken and unwritten communication) can make the difference between fulfilling, successful, interpersonal relationships and frustrated and non-productive interaction. Non-verbal communication or body language is unique as it firstly mirrors the innermost feelings and thoughts of the patient. Secondly, non-verbal communication is difficult or even impossible to fake during communication and thirdly, if the patient's non-verbal communication is not consistent with the verbal communication, the pharmacist might become suspicious of the real meaning of the message of the patient.

- There will always be some *level of conflict* between the pharmacist and the patient and the management thereof needs a certain set of skills to be learned by the pharmacist

Whether the pharmacist is communicating with patients or colleagues or the doctor, the possibility of conflict is always there and learning appropriate conflict management strategies will help pharmacists to address the conflict in their practices (McDonough *et al.*, 2006:6). The solution to conflict or angry, difficult, frustrated, emotional patients are the following corrective actions by the pharmacist, according to Gardner *et al.* (2002:39):

- Use empathy;
- Find out what the patient wants;
- Remain non-judgemental;
- Express understanding (reflection);
- Avoid defensive postures;
- Remain open and available;
- Work with barriers until they change; and
- Set limits.

The pharmacist needs to apply the PAR technique where, in short, the pharmacist needs to *Prepare* when sensing a conflict situation; *Assess* the situation and *Respond* accordingly with empathy and *Reflecting* responses (Gardner *et al.*, 2002:40).

- To show *empathy* with the patients is one of the first communication skills the pharmacist needs to be competent in.

Empathy has been discussed in the previous sections. The patient needs to feel they can express themselves to the pharmacist that conveys his/her understanding of the patient's situation in a caring, accepting and non-judgemental way according to Beardsley *et al.* (2007:53). It is a basic skill of communication of great importance that can be learned and applied successfully by the pharmacist.

- Pharmacists try to keep the conversation with the *patient focussed on the medicine* in the short time available for interaction.

Not all the pharmacists have the luxury of long consultation sessions with patients and only have a very short window of time available to interact with the patient. The best needs to be done in that short time span. The conversation needs to be focused on the patient's medication. The goal

of the Patient Medication Consultation (Gardner *et al.*, 2002:52) is to have the patients to verbally verify their own understanding of how to take their medication by using three techniques, namely Prime Questions (interactive consultation technique making use of three open-ended questions the pharmacist asks), the Final Verification (patient is asked to review how he/she is going to take the medicine) and in the case of patients with refills of chronic medication, the Show and Tell Technique (the patient is shown his/her medicine and needs to inform the pharmacist as to the reason, manner and differences of taking the medicine) Through this technique the patient as well as the pharmacist can focus on the medicine of the patient.

- The pharmacist always needs to be aware of what words are used in communication in order to convey the *correct message*.

The pharmacist needs to ensure (determine) the patient's level of health literacy because low health literacy impedes the ability of the patient to understand information provided to them by the pharmacist (Beardsley *et al.*, 2007:161). Language and words must be used that the patient can understand. The use of spoken words to successfully transfer a message from the sender (pharmacist) to the receiver (patient) is the basic definition of Verbal Communication (McCorry & Mason, 2011:35). The use of clear language to convey information and thus achieving effective verbal communication, depends on various factors *inter alia* such as content and word choice, grammar, pronunciation and tone. The pharmacist must first have a clear understanding of what he/she intends to say and must use the words and terms correctly to reflect accurately the intended message (McCorry & Mason, 2011:36). Incorrect grammar and pronunciation of words can hinder the clarity and thus the effectiveness of the message.

- Communicate to the patient the *correct information* needed at the *correct time*.

As part of the interactive consultation proves, the pharmacist makes use of reflecting responses that acknowledge the feelings of the patient, clarify barriers by encouraging the patient to elaborate and focus the conversation on the patient's concerns (Gardner *et al.*, 2002:40). The pharmacist needs to make sure what the patient knows by means of the Prime Questions where the pharmacist uses direct, open-ended questions to determine the knowledge of the patients regarding the medicine, then fills in the gaps and asks the patient to summarise (Gardner *et al.*, 2002:5).

- Try to give potentially *sensitive information* without offending the patient.

All information given to the patient should be neutral and non-judgmental. The patient needs to make his/her own decision after receiving neutral information. Find out from the patient if they use

any alcohol for example after explaining to them that the medicine they are to receive, might have negative interactions with alcohol.

- The best communicator has the *best listening skills*. Do not jump to conclusions before the patient has finished his/her story.

The patient's willingness to again use a medication management service in the future is strongly influenced by their perceptions of how well the pharmacist was listening at the previous encounter (Carter *et al.*, 2015:163). Listening to a patient seems so obvious but pharmacists are sometimes so absorbed in their attempt to explain all the information about the medicine that they forget to focus on the patient him/herself and what the patient has to say and the meaning of the words of the patient (Rantucci, 2011:167). Listening Skills are grouped into four categories namely, passive listening, acknowledgement responses, encouragement and active listening. The pharmacist needs to master all these skills to become a pharmacist with the best listening skills! For the pharmacist to listen to patients is crucial to effective communication as they try to strive to understand the thoughts and feelings of their patients. But the understanding needs to be conveyed back to the patients so that they understand that the pharmacist understands him/her (Beardsley *et al.*, 2007:50). Listening well involves understanding the content of the information as well as the emotions and feelings the patient is providing. Beardsley *et al.* (2007:52) stated that three skills are useful to be an effective listener: summarising (the pharmacist summarises the critical information to be sure he/she understands accurately and for the patient to add new information), paraphrasing (the attempt by the pharmacist to convey back to the patient the essence of what the patient has just said) and empathic responding (the pharmacist communicates back to the patient that he/she understands the feelings the patient communicated to the pharmacist).

- Build a professional relationship by *knowing your patients* when they are not patients.

When the pharmacist knows his/her patient by means of relationship with the patient, is it easier for the pharmacist to understand the patient's frame of reference. The frame of reference, according to Cole, (1993:31) is made up of the background of the past experiences of the patient that he/she values as important. The patient's beliefs, paradigm and mind set also form part of the Frame of Reference. The more the pharmacist understand the frame of reference the patient, the easier is it to communicate with the patient. When the pharmacist knows what is important to the patient, the pharmacist can tailor information to meet the patient's needs (Cole, 1993:32).

Information regarding communication skills and counselling skills as well as learning and training communication skills opportunities, courses, workshops seminars and many more are readily

available on the internet. Pharmaceutical societies of other countries provide information and directives regarding communication skills.

The respondents of this study are pharmacists and they can use the mandatory Continuous Professional Development (CPD) system to receive training to enhance the above-mentioned skills. The South African Pharmacy Council (SAPC) introduced CPD for pharmacists in South Africa as the “SAPC’s intention is mainly to ensure that persons registered remain committed to being professionals, keeping up to date and continuously seeking to improve their knowledge and optimising themselves on their career opportunities, both current and for future endeavours/undertakings” (SAPC, s.a.). CPD can be defined as “ongoing learning, or means by which a person maintains, broadens and improves his or her professional competence throughout his or her working life” (SAPC, s.a.).

The respondents who mentioned their need for the development of certain skills, already completed the first step of the four-step CPD cycle (Figure 5.17) by reflecting on their practice and identifying their needs to master these skills. The remaining three steps are planning, implementation and evaluation. For the first step the pharmacists already answered the following questions: What do I need to know and what do I need to be able to do?

The CPD cycle of the South African Pharmacy Council for South African Pharmacists.

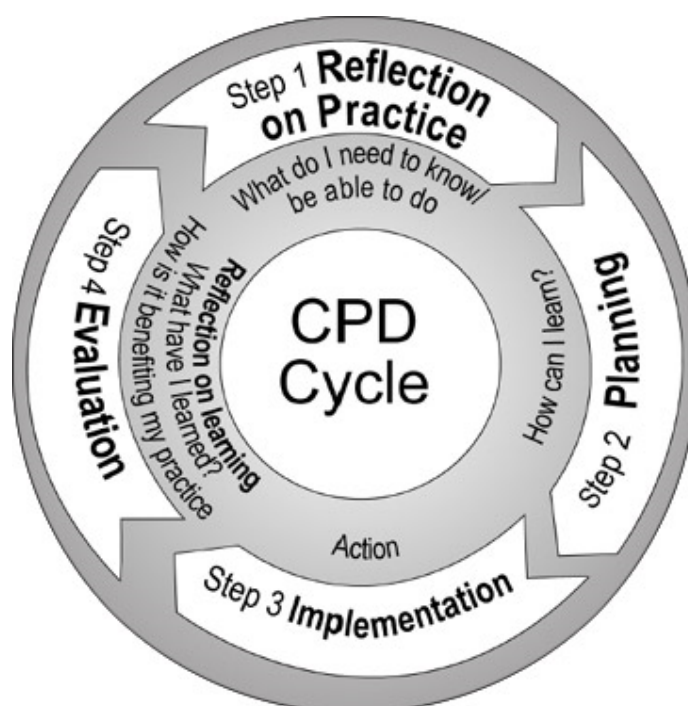


Figure 5.17: The CPD cycle (SAPC, s.a.)

5.6.2.3 Problem 2: The patient and I am from different cultures and we do not understand each other when I need to communicate with my patient

The respondents indicated during the interviews, as well as in the web-based questionnaire, that they experienced language as a problem in communicating with the some patients.

"I would have liked it if I could have understood and spoken the language. They immediately have more respect for you if you can speak their language."

"If one cannot communicate / listen, one can feel frustrated easily and lose patience, and loose the patient also. If one is not able to explain or talk to a patient in a language understood by him, there is an immediate barrier which could result in a misunderstanding of medication usage."

"I wish I could speak and understand a black language. Language is just an important aspect for me. We do not always have somebody who can speak the other language. Now and then we have a problem with a dependant from one of the rural areas."

Some of the respondents motivated the importance of effective communication between patient and pharmacist as follows:

"If you can communicate well especially across cultural boundaries you will be able to use this skill in a positive way to motivate the patient to adhere to treatment through the way you will direct or guide the patient. It is difficult to explain to a patient how and when to take medication when language is a barrier and almost impossible to then convey why it is important."

"If you can communicate well in a language that they can understand to some extent, then it just makes the communication better."

South Africa has 11 official languages of which English and Afrikaans are two "Western" languages". Most of the other languages are indigenous languages spoken mostly by the black indigenous people of South Africa. English is an international language and Afrikaans is a South African language and spoken by many people but there is still a great majority of people who do not speak Afrikaans or English and only their African language. Most of the study participants are fluent in Afrikaans or English but not many of them can speak or understand even one of the indigenous languages of South Africa. The indigenous languages are also regional languages spoken by the inhabitants of specific regions.

"It is a big challenge in South Africa with eleven languages. You sometimes have before you persons from different language groups. Your role there should be that you have to be fluent to understand a language that the patient understands, because if that communication is poor, it can affect adherence seriously. We normally speak English to black patients. I have had the advantage in practice that when you speak to a migratory worker – such as Malawians – they speak reasonably good English, but some do not."

"It is an obstacle on the one hand, that one cannot speak all eleven languages. You have to be patient and listen well. You have to be able to speak the right language. Some people cannot understand Afrikaans. Black people, I have noticed, struggle with English and Afrikaans."

"If one is not able to explain or talk to a patient in a language understood by him, there is an immediate barrier which could result in a misunderstanding of medication usage. Communication between patient and professional is very different than communication between professionals. We need to understand that many patients or the population we serve does not understand our fancy medical terms. Depending on how well patient and pharmacist can communicate, too many different languages in this country may make it difficult to converse in patient's home language, which is best for the patient understanding advice that pharmacist wants to give. Effective communication is necessary to ensure a professional relationship. This could be a barrier in that if there is a language barrier the perception of the pharmacist would be considered unprofessional by the patient. It is of utmost importance that pharmacists have or learn the communication skills which are necessary to convey complete and accurate information to a patient which is understandable and acceptable to his/ her culture."

Some of the respondents also indicated that it is not only the language that may be a problem but also the difference in lay health beliefs and cultural aspects of the patients.

"When I explained to a black woman how to use a vaginal cream, I explained and talked, and I did not realize at the time that if they say "yes" it means that they are hearing you, but it does not mean that they understand. The next day she brought the stuff back and said it would not enter her ear. She had tried to put the vaginal cream into her ear and then I realized that one has to be far more careful about how one speaks to the different language groups and whether they actually "hear" what you are saying".

"It is also a problem within their culture because of the hierarchy of who the most important person is and who is allowed to say certain things" (Not always the patient but a more senior or important person speaking on their behalf).

A respondent provided an example of the impact of Lay Health beliefs amongst patients from other cultures:

*"I have had cases where a man came in to get castor oil for a **day-old** child and that is where the culture comes in. It is not about the child who is supposed to develop a runny tummy, but about the effort to get the evil spirits out of the child."*

"Language is a good example. It would be easier for a patient to receive info in his/her mother tongue, but a pharmacist can only speak one or two languages. The only external barrier I can think of that can affect communication is a language barrier, i.e. when the consumer prefers a language I cannot speak. However good one is with communication skills, some barriers like language could hinder the whole process."

"If you can speak the patient's language the more information you will give. The better you can communicate, for example to help patients in their own language, the easier it is going to be to convey your information to the patient. The pharmacist must counsel the patient in a language which is easy to understand, and take the time to do so, so that the patient fully understands the need for adherence. Your level of communication will influence the amount of information one can share with a patient. This is an ongoing relationship and one should increase the level of communication as one builds a relationship with a patient. With that information role that you have, you must be able to communicate the message so that the patient can understand it because it is at his/her level."

The above-mentioned quotes of the respondents highlighted the problem pharmacists have if they do not speak or even understand the patient's language but need to interact and communicate with the patient.

Communication in general as well as communication in a language different from their first language is considered unproblematic as long as the patients speak Afrikaans or English to South African pharmacists (Van de Poel *et al.*, 2015:197); however, African language communication was experienced as significantly more problematic. The problems do arise from the pharmacist's limited vocabulary knowledge, pronunciation and difficulties with grammar in the African language especially when patients do not speak Afrikaans or English and the pharmacists are not fluent in African languages (Van de Poel, *et al.*, 2015:197).

In the next section possible solutions for language as a problem are presented.

5.6.2.4 Solution 2: The patient and I am from different cultures and we do not understand each other when I need to communicate with my patient

The respondents suggested some of their own solutions to the problem with language and cultural differences during the interview and the web-based questionnaire.

The obvious solution of the language problem for the pharmacist is to learn the language.

"The only external barrier I can think of that can affect communication is a language barrier, i.e. when the consumer prefers a language I cannot speak."

"Ideally the pharmacist should be able to speak the patient's preferred language."

Other possible solutions to the language problem were presented, such as an interpreter or a person working in the pharmacy who knows the languages of the pharmacist as well as the patient:

"If the pharmacist has a foreign patient and no common language or interpreter, it can affect the communication significantly."

"Fortunately there is someone else who works there, and you can ask such a person to help if you cannot understand. So, this does tend to help. I wish I could speak and understand a black language."

"Black people, I have noticed, struggle with English and Afrikaans. Fortunately there is someone else who works there (pharmacy), and you can ask such a person to help if you cannot understand. So, this does tend to help."

If there is no translator available or nobody can speak or understand the language, the pharmacist might make use of other means such as pictures or pictograms. Cell phones, iPads, computers and other electronic devices have the ability to access programs which can translate conversations.

*"Sometimes one can use **pictorial images** to communicate if there is" and "In cases where communication is difficult a pharmacist with a negative or indifferent disposition will not make the effort to attempt communication via other means, e.g. **pictograms** or **spend the extra time** ensuring the patient understands".*

"Fortunately we have devices that allow us to translate conversations almost instantly."

The pharmacist needs to be sensitive to the cultural (language) differences in the pharmacy. The pharmacist needs to examine the cultural make-up of the catchment area of the pharmacy. The pharmacist needs to be able to answer the following questions, according to Beardsley *et al*, (2007:162) to be able to offer the best service to the community:

- Who are the predominant ethnic group of the pharmacy?
- What are the overall feelings about the accessibility and quality of the pharmacy's health care?
- What is the level of trust in the health care in general? and
- What are the general community beliefs according to the community leaders?

It is the pharmacist's responsibility to find out what the dominant culture and language of the potential patients of the pharmacy is and develop the necessary skills to be able to help the patient to the best of his/her ability.

Pictograms are "standardised graphic images that help convey medication instructions, precautions, and/or warnings to patients and consumers" according to the United States Pharmacopeia (USP) (USP: 2017) and International Pharmaceutical Federation (FIP: 2017) is of the opinion that "pictograms give health professionals a means of communicating medication instructions to people with no common language and / or who may be illiterate. Pictograms may also be used for those who have slight cognitive impairment or difficulties seeing such as the elderly". The pictograms are also quite helpful in passing on important information to patients that in the case of South Africa, have a lower reading ability or who cannot speak either Afrikaans or English. The United States Pharmacopeia (USP) offers 81 pictograms in .gif or .eps format which can be downloaded for use from their website. Although there are data suggesting that some pictograms are universal, the International Pharmaceutical Federation (FIP) is collaborating with as many as possible different countries to translate the pictogram software into local languages and local cultures (FIP: 2017)

Dowse and Ehlers (2004:687) indicated that local (South African) designed pictograms were preferred over the American developed pictograms (USP). "Most of the respondents (98%) reacted positively to the idea of having pictograms on their medicine labels." Healthcare providers reported that extra time is needed to explain the pictogram labels. Medicine and patient incorporated pictograms are preferred over the text-only version of information (Dowse & Ehlers, 2004:693). Health care providers need to be aware of the potential for misinterpretation and should have knowledge of the incorrect meanings of some of the pictograms.

Pharmacists, their assistants and pharmacy students working on the Phelophepa trains are required to provide advice for the medicine that they dispense to the patients but language is often a barrier to overcome (Dowse, 2017). The Phelophepa Train of Hope was started by the Transnet Foundation in South Africa in 1994 as a health care train, initially as a train delivering eye care services to the rural communities in South Africa in but has developed into a fully-fledged primary health care train and the second train was added after 2009. The Phelophepa trains also provide a service to the patients in the rural areas of South Africa and has *inter alia* a fully operational pharmacy on board (Truter, 2014:466). The patients come from multiple cultural and language backgrounds and have limited literacy skills and are unable to read the written instructions. In 2009 Prof Ros Dowse from Rhodes University in Grahamstown in South Africa, agreed to prepare a set of dedicated pictograms for use in the pharmacy on the train. The pictograms are on rolls of stickers and are attached to the medicine containers when the correct use of the medicine is explained to the patients (Dowse, 2017).

In the mining communities in South Africa a basic “operational” language was developed that every mine worker and related people could understand and it can be implemented to assist the communication process:

“Even among our indigenous languages, where people speak poor English, there is the working language called “Fanagalo”, which has played a big role in many cases in settings like mine hospitals and even in a satellite pharmacy where you might be in a black area. “

Culture differences might be solved by speaking their language or keeping in mind that:

“And then I realized that one has to be far more careful about how one speaks to the different language groups and whether they actually “hear” what you are saying”

Penn *et al.* (2011:316) indicated that language and cultural barriers are an integral part of pharmacy interaction in South Africa and a *culture broker* plays a potentially important role in assisting pharmacists and patients to negotiate these barriers. The culture broker could be of assistance with communication aspects such as checking the patient's understanding of dosage instruction and ensuring that patients understand why they are taking certain medicines. The culture broker could also assist with the difficulties that are important for pharmacists, such as access to treatment, as well as changing regimens and generic drugs and lastly, the monitoring of adherence.

There is no recipe or proven method available to be used in cross-cultural communication according to Grobler *et al.* (2005:209). The pharmacist needs to work from a person-centred perspective and any patient is considered as being from another culture that has its own frame of

reference. Cross cultural communication is a person-centred process where the facilitator has respect, values and appreciates the patient's culture.

The pharmacist may with the help of local mother tongue speakers, start to learn the dominant local language. Some of the other staff in the pharmacy, or regular patients may know the language and slowly day by day the pharmacist can learn the meaning of certain terminologies that are used most often, such as "take one tablet in the morning" or "take after meals" or the difference between "three times a day" and "every eight hours". The pharmacist may develop some aids such as flip cards with pictures of different medicines (such as tablets, capsules, asthma pumps, liquids, creams, ointments), medicine measures or even pictograms on cards in a booklet format that is close by and handy to be used to show to the patient. A fulltime assistant trained in translation can be appointed to assist the pharmacist/s in providing information as well as motivating the patient in an achieving basic medication adherence. A life-size poster of the human body indicating all the important body parts in the dominant local language may be of help to the pharmacist by pointing towards the poster or even asking the patient to indicate on the poster, if necessary, during the providing of information to or motivating the patient. Although the patient cannot fully understand the pharmacist, a very basic level of medication adherence can be achieved. The pharmacist and the pharmacy need to be creative in solving the problem.

There are language courses available teaching the pharmacist the local language. Although the courses are usually generic in nature as they teach the speaker general conversations and terminology and do not only also focus on medical and pharmaceutical words, it is still a positive step forward. The pharmacist and patient need to develop a therapeutic relationship and if the pharmacist is able to acknowledge the patient by greeting him/her in their own language according to their custom and culture and then indicating to the patient that the pharmacist is not fluent in their language a strong bond, mutual respect and a perception of care has been formed between them. It is important to notice that it is not only beneficial to learn the language but the pharmacist must learn as much as possible of the sociology and culture of the local mother tongue speakers. Some of the language and culture groups expect the pharmacist to firstly greet the patient and exchange formalities regarding the family and children and only then to move over to the medicine and other information that needs to be discussed.

Most of the pharmacy schools in South Africa include in the curriculum an African language course that was particularly developed for the pharmacy students introducing pharmaceutical and medical terminology as well as well as cultural and traditions associated with the language. For those pharmacy school who have not yet included a African language course, it is suggested that the course can be spread over the duration of the training, starting off with the basic skills of speaking the language and the cultural and social aspects thereof and introducing the medical

and pharmaceutical applications in the later years of the study as the students mastering more skills and become more fluent in the language. The indigenous language course needs to be part of the curriculum, so that all pharmacy students, on entering the workplace, have the very basic knowledge of one of the official African languages of South Africa. The students might prefer the language of their home town where they might go and work as a pharmacist. The pharmacy schools may introduce the language that is spoken the most in the area that the pharmacy school is situated as the students need to do experiential training in the public sector and communities close to the pharmacy school.

To be able to speak the language of the patient or have knowledge of their sociocultural background will have an impact on the medication adherence of the patient according to Figure 2.1 (Iuga & McGuire, 2014:39). The importance of the pharmacist's communication and relationship with the patient as well as knowledge of the health literacy and medication beliefs of the patients are some of the determinants that can influence the medication adherence of the patient.

5.6.2.5 Problem 3: Use of correct terminology to describe optimal or sub-optimal use of Communication Skills

During the interviews as well as the web-based questionnaire, it became clear that some of the respondents did not use and agree with the correct and applicable terminology appropriate to the optimal or sub-optimal use of their communication skills and rather used terms such as good, bad, not so good, effectively, appropriately, unsuccessful and more. Knowledge and thus usage of appropriate and correct communication knowledge would have assisted the pharmacist to better describe the communication between pharmacist and patient in the pharmacy:

- *"We must communicate **correctly**. Professionalism includes being able to communicate **appropriately** and **inadequacies** in communications lessens the overall professionalism image of a pharmacist."*
- *"If a pharmacist cannot communicate **effectively** no matter how professional they are, they are rendered ineffective."*
- *"A poor relationship with a patient will lead to **poor** communication as either party may not be interested in the information being presented by the other and therefore communication is unsuccessful."*
- *"If your attitude was not too good today, you might **not communicate so well**"*

- *“**Bad** communication skills can lead to good quality information being perceived by the patient as making up a story.”*
- *“At the end of the day, if you communicate **poorly**, and you are wearing a white coat, it will not help”.*
- *“A lack of **adequate** communication can be interpreted as lack of professional skills although that may not be the case”.*
- *“**Good** communication skills will positively influence the information so if there is not so **good** communication skills the knowledge might not be adequately transferred/shared even though the pharmacist might have the knowledge”.*
- *“A **lack of good** communication skills may limit a pharmacist’s ability to motivate a patient to adhere.”*
- *“The more **effective** the communication skills the higher the probability that the motivational role will be successful.”*
- *“Because if you have **good** communication skills, it is easier to motivate a person than somebody with **poor** communication skills.”*

The respondents do observe, realise, sense and experience that the communication process as well as the outcome are not as they are supposed to be, or are unsuccessful. The deduction can thus be made that the pharmacists do not have the necessary knowledge and experience of communication and communication skills to be able to articulate their observations with the correct communication related terminology. The problem may be described as the inability of the pharmacists to use the correct terminology when discussing the optimal or sub-optimal use of communication skills.

When the pharmacist describes the communication process with the patient as good or bad, it is very vague and the pharmacist cannot him/herself learn something from the experience. What aspects of the communication process do they need to focus on the next time and what aspects do they need to improve their competency? If the pharmacist is more specific such as “I struggled to show enough empathy today with patient X” or “I reflected quite well in that consultation with Mrs Z and because of that I know she understands how to use her asthma inhaler correctly”.

In the following section some solutions to the problem are addressed.

5.6.2.6 Solution 3: Use of correct terminology to describe optimal or sub-optimal use of Communication Skills

At first the pharmacist needs to do some reflection regarding his experience of the “bad” or “inadequate” communication or “good” communication with the patient. Through this process, the pharmacist will be able to indicate if he/she is responsible for or the cause of the “bad” or “good” communication. As soon as the pharmacist accepts that he/she needs to do something about this problem, the solution can be identified.

The solution to the “not” correct use of the appropriate terminology to describe the optimal and sub-optimal use of communication skills is obvious and pharmacists need to undergo training in the basic principles of the communication process of a pharmacist and patient as well as refresher courses. As the pharmacist masters communication skills, the correct communication “language” will be known and understood to describe the communication or consultation process with the patient during a reflection session. Correct terminology will help the pharmacist and the patient to evaluate the effectiveness of the communication process and subsequently to adapt or change it and focus on the medication issues at hand in the future.

In order to assist the practising pharmacists, short courses in communication and counselling skills may also be offered by the pharmacy schools. The undergraduate communication course can be altered and adapted to suit the needs of the practising pharmacists.

Van de Poel *et al.* (2015:189) conducted a study amongst South African pharmacists and the respondents indicated that a lack of knowledge (67.69%), a lack of skills (63.85%) and a lack of resources (41.54%) were perceived as barriers for conducting effective communication with patients. Thus not only the theoretical knowledge of aspects regarding communication skills but the competency to be able to conduct communication with the correct skills may also be a solution for the problem as stated above.

A framework for the testing of consultation skills of practitioners (pharmacists) undertaking medication-related consultations was developed by Abdel-Tawab *et al.* (2011). Pharmacists need to possess good consultation skills in order to enable patients to manage their own health through the better use of medicines (Abdel-Tawab *et al.*, 2011:451). A need for pharmacists with a “patient-centred approach to medication-related consultations, eliciting patient’s perspectives on the treatment and taking shared approach to decision-making treatment” developed. The patient-centred approach can be learned and the authors developed a framework specially to evaluate medication-related consultations called the MRCF. The framework can identify the pharmacist’s strengths and weaknesses in conducting a patient-centred, medication-related consultation

according to Abdel-Tawab *et al.* (2011:456). Pharmacists who play an important role in the delivering of patient-centeredness clinical services such as medicine reviews and consultations regarding prescribed medicine benefit from the MRCF. The MRCF is also used to assess the consultation performance of students as well as the practitioners with the aim of identifying their possible training needs. Lastly, the MRCF can also be implemented as a reflective tool to assist the pharmacist with identifying CPD possibilities. The framework is available on the internet thus the pharmacists can make use of the MRCF to evaluate his/her own consultations, identifying areas of development in the process.

In the following section the solutions for problem of the total system will be presented.

5.6.3 Total system solution

The researcher identified a “problem” applicable to the total system and will present the problem as well as possible solutions thereto.

Table 5-11: The total system solution

Problem	Solution
1. Pharmacists not yet focussed on adherence but still function in a paradigm of compliance	1. Training, orientation and theoretical background regarding the pharmacist's role in medication adherence.

5.6.3.1 The problem: Pharmacists are not yet focussed on adherence but still function in a paradigm of compliance

The researcher came to the conclusion that the perceptive system of the pharmacists who participated in this research is not a true representation of medication adherence. The researcher would prefer to state that the system is rather an example of medication compliance than medication adherence.

The perceived primary outcome of the role of the pharmacist in the medication adherence of the patient is the Motivational Role defined as “All your actions in order to motivate the patient to adhere” according to the Issue statement where the role of the pharmacist is to motivate the patient to keep to the instructions from the prescriber (see Figure 5.1 for the SID of the system). The researcher had expected the primary outcome of the model as a role much closer to the principals of adherence and a role with a name related to medication adherence. The Motivational Role as presented by the respondents could have been the second last role (either a second primary outcome or a secondary outcome) and the primary outcome or role of Adherence. The

proposed affinity after the Motivational Role that is positioned in the topography of the system as a definite primary outcome is then not part of a loop as loops mask the primary and secondary outcomes and any one affinity can take the role of the primary outcome. A proposed affinity that acts as a primary outcome and attached to the Motivational Role, for example, will have the result that even when The Pharmacists' Portrayal Loop develops into a vicious cycling circle, the vicious cycle may be exited and end up with the proposed primary adherence affinity.

Except for the result of the model as indicated in the discussion above, that is not purely adherence-orientated according to the researcher, the model and results also do not adhere entirely to the definition of adherence according to the NICE clinical guideline 76 (2009:1): "The extent to which the patient's behaviour matches agreed recommendations from the prescriber. With adherence there is an emphasis on the patient's freedom to decide whether to adhere to the prescribers recommendations and that the patient will not be blamed in case of a failure to do so. A much greater engagement with the patient was expected with more freedom as indicated in the definition. The definition of compliance according to the NICE clinical guidelines 76 (2009:1) is "the extent to which a patient's behaviour matches the prescriber's advice" is a clearer representation of the results of the research, especially the Motivational Role of the pharmacist in the pharmacy.

There seems to be a lack of patient involvement and a lack of two-way communication with patients to find out more about the patient's background, medication experience, illness experience and problems with medication. The term Pharmaceutical Care is only once mentioned by a pharmacist indicating that Pharmaceutical Care and its principle of the pharmacist who takes responsibility for the drug-related needs of the patient is also still not part of the vocabulary and mind set of the pharmacists. *The main goal of a pharmacist in any sector be it private or public is to provide the best pharmaceutical care possible to the patient in his/her care. Without you having to do something to your professionalism itself, the image that people have will improve if you communicate.*

As part of the Information Role and Motivational Role as presented by the model, the patient is told to do by the pharmacist what has possibly already been told by the prescriber. The patient is left with only the Motivational Role and seems to continue on his/her own and struggle through his/her adherence challenge as adherence is not perceived as part of the role of the pharmacist in the medication adherence of the patient.

Although the results of the research did not live up to the expectations of the researcher and the primary role or outcome of the model was not adherence, the pharmacists who participated in the

research showed a significant and sometimes an unknowing shift towards the principles of a formalised medication adherence structure.

It may be possible that the respondents do not really understand the rather academic difference between adherence and compliance. In compliance, the patient is expected to follow the directions of the prescriber where adherence focuses on the patient accepting the agreed upon treatment between the patient and the prescriber or pharmacist. From a sociological perspective, this can be explained as follows: The world of pharmacy portrays the pharmacist in a role of the specialist in medicine manufacturing or compounding. The essence was that the pharmacist receives the official document (prescription) from the prescriber (medical doctor) and the pharmacist has to follow the instructions exactly to the letter. Thus the pharmacist worked in this world where he/she has to follow the order from the doctor. The pharmacists were often not part of the original diagnosis of the patient's illness that leads to the prescription of the medicine the patient had to take. The prescription is the "order" from the doctor to the pharmacist instructing him/her what medicine to hand to the patient. The pharmacist is in control of all this medicine in the pharmacy is only allowed by law to release this medicine to the patient by means of a valid "order" and that is the prescription. The prescription is also ordering the patient how to take the medicine and the pharmacist is merely relaying this order from the doctor to the patient and needs to see to it that the patient understands and follows this order again to the letter. Pharmacists are very responsible professionals and take their profession very seriously and do see themselves as part of the health care system where they are the custodians of medicine. Because medication is the domain of the pharmacist and the pharmacist knows his medicine very well, he/she then accepts the order from the prescriber of the medicine that is best for the patient, and needs to see to it that the patient takes the medicine exactly as "ordered" by the prescriber with added instructions from the pharmacist because it is all for the benefit of the patient to become well again. As long as the patient follows the instructions of professionals with the knowledge and that is the prescriber and the pharmacist.

The pharmacist needs to manage these two very important and often incompatible components in the physical environment of the pharmacy, namely the medication and the patient. The pharmacy is the place where these two components eventually meet and come together under the supervision of the pharmacist. The pharmacist's ultimate goal is to manage to the very best of his/her capabilities the successful "marriage" between the medication and the patient. The predicament now is that the patient will not under normal circumstances want to be married to this medicine product out of his/her free will. In the case of acute illness, the patient is "forced" into this marriage only because the patient felt sick and in his/her quest to become well again, submitted him/herself to the authority of the health-care system. As the patient is declared not

well or sick after the careful diagnosis by the doctor (prescriber), the patient receives a new role in society and that of the “sick role”. The patient is now excused from normal social duties in the society such as going to work, writing a test, attend a meeting etc. as the patient is sick and unfit for such duties and responsibilities. The patient also has new responsibilities associated with the sick role and *inter alia* the patient has the “obligation to “want to get well”” (Parsons, 1951:437) by utilising the health-care system. The patient also has the obligation to seek “technically competent help” namely from the doctor and to cooperate with the doctor in the process of getting well again. “It is here, of course, that the role of the sick person as patient becomes articulated with that of the physician in a complementary role structure” (Parsons, 1951:437). Parsons’ sick role concept was originally focussed on the patient with acute illness and has become problematic in the increases significance of chronic illness. The doctor-patient relationship is changing because of chronic illness but according to Varul, (2010:72) remains the sick role active in the field of health and illness. The pharmacist dispenses the prescribed medicine as ordered to patient and is part of the health-care system the patient utilized to become well again. The patient and medicine are “married” to each other and it is expected of the patient to use the medicine exactly as prescribed to become well again.

The system of the perceived role of the pharmacist in the medication adherence of the patient reflects what might be an accurate image of the reality and daily routine of the pharmacist in the pharmacy.

In short, the pharmacist’s view of his role in medication adherence of the patient follows. The pharmacist works in a physical environment and is surrounded by the several external factors that have a negative impact on his/her ability to deliver the service of providing the patient with the prescribed medicine. The pharmacist as a thinking and feeling human being who has a Disposition towards the patient that should be positive but there are some instances where the pharmacist may have a negative Disposition towards the patient standing in front of him/her. The pharmacist has to talk to the patient eliciting information, providing information and motivation regarding the usage of the medicine. The pharmacist also has the responsibility and the need to communicate to the patient to provide information, receive information and ensure that all the information received is understood to enhance medication adherence. It is very important for the pharmacist to be accepted and seen as a professional person and he/she always tries to act accordingly in the way he/she presents themselves, talks to patients as well as colleagues and staff in the pharmacy. The pharmacist must always make sure that his/her behaviour is professional and in accordance with the strict rules and regulations according to the SAPC. The working environment also needs to be of exact standards and the professional handling of the patient as well as the product namely medicine, is very important. The pharmacist needs to

provide information to the patient when requested to or when handing the patient's prescription as the pharmacist has the wealth of information to give to the patient. The pharmacist as custodian of medicine is in a constant learning curve to make sure that he/she has the most recent information of all the new medicine as well as new treatment regimens and new illnesses. The final task of the pharmacist is to ensure that the patient uses the medicine correctly and that the patient keeps to the treatment regimens and adheres to the usage of the medicine. The pharmacist will always motivate the patient to adhere as it is the proven scientific behaviour. That is, in short, the pharmacist's view of their role in medication adherence of the patient.

5.6.3.2 Possible solution: Training, orientation and the theoretical background regarding the pharmacist's role in medication adherence

Respondents acknowledged and mentioned that medication adherence is a different way of practising pharmacy and identified that the pharmacists need to be competent to be able to manage medication adherence of his/her patient. The respondents accept that the pharmacists will need the competency, skills as well as knowledge to be able to fulfil the rather unknown role. The focus is thus on providing as many as possible patients in the shortest timespan with the prescribed or requested medicine. The respondents acknowledged that the present system is not focused enough on medication adherence of the patient and the pharmacists do not know what exactly the role is they will need to fulfil to meet the medication adherence needs of the patient.

- Not many pharmacists are *competent in the management of medication adherence* because the system mainly focusses on the handing over of medicine to the patient in the quickest and most effective way.
- *"Not any of the pharmacists walk out of there (pharmacy school) with those skills. Apart now from possibly somebody inside who works within the system and who has to do a lot with it. Our system is such that you do not focus on it enough. That is why I am glad that there is a little role rotation towards medication adherence within our profession. We still do not know how it is going to work, that the pharmacist fulfils that role, to see to it that the patient takes his medication correctly".*

The NICE Clinical Guideline 76: Medicines Adherence – Quick reference sheet for pharmacists (2009:1) was developed by the Royal Pharmaceutical Society of Great Britain as a structured guideline and reference sheet to all pharmacists in Great Britain who interact with patients in the context of medication adherence regarding prescribing or dispensing or medicine reviews. According to the guidelines the pharmacist should include the specific step when implementing an adherence programme. These guidelines may serve to answer some of the questions and

addresses some of the uncertainties that the respondents in the previous paragraph highlighted regarding medication adherence. The key steps for the implementation of an adherence programme should include the following actions:

- Key step 1: Involving patients in decisions about medicines by
 - Improving communication by adapting the consultation style to each patient's needs (*Communication Role*);
 - Increasing patient involvement by establishing the level of the involvement of the patient wants in decisions about treatment and encourage and support patients, families and carers to keep up to date lists of adverse reactions;
 - Understanding the patient's perspective by asking the patient's perspective what he/she knows about a medicine as well as the aim of the treatment; and (*Communication Role*); and
 - Providing information, check understanding and reinforce information and provide sources of reliable information and support (*Information Role and Motivational Role*).
- Key step 2: Supporting adherence of the patient by
 - Assessing adherence routinely in a non-judgemental way by using the patient's medication records to identify non-adherence and patients' needs for support and
 - Tailor interventions such as information and discussions to the patient's specific needs to increase adherence (*Information and Motivational Role*).
- Key step 3: Reviewing medicine usage and medicine reconciliation and enquire about the adherence of the patient and clarify possible causes for non-adherence and agree upon action with the patient. The patients' knowledge, understanding and concerns about their medicine and whether the patient thinks they still need it must be asked (*Information Role*).
- Key step 4: Ensure that information arising during prescribing, dispensing or reviewing is communicated to other health care workers and role players.
- Key step 5: Ensure that the patient's confidentiality is not breached (*Professionalism*).

The researcher compared the roles of the pharmacists regarding medication adherence of their patients to the NICE clinical guideline 76 (2009). Some of the roles compare favourably with those of the NICE clinical guidelines 76 (2009). (*The roles of this research were indicated in Italics at the end of each key step.*) It is also clear that there are many other roles, interventions and actions expected from the pharmacist in medication adherence according to the NICE clinical guidelines 76. Reviewing medicine usage and medicine reconciliation for example are not interventions used at all or associated with the role of the pharmacist in medication adherence in South Africa. Key

step 3 that includes *inter alia* reviewing medicines use and medicines reconciliations is a major important and non-negotiable step in medication adherence. All the other roles presented by the model of the respondents do appear in some form or another in the NICE clinical guideline 76 (2009). The pharmacist will need a new primary outcome as indicated in the previous paragraph's discussion. A total restructuring of the practice of pharmacy will be needed to be able to implement the key steps of medication adherence.

There are various other examples of medication adherence programmes in pharmacies all over the world where some of the above mentioned key steps are used and developed and implemented such as Bacci *et al.* (2014), Mendys *et al.* (2014), Pringle and Coley, (2015), Ahmad *et al.* (2010), Mast *et al.* (2015), Ahmad *et al.* (2014) to name a few.

Other suggestions in solving the problem, according to the researcher, the pharmacists are not yet focussed on medication adherence but still function in a paradigm of compliance as a training in the theory as well as the actions and skills associated with medication adherence. The key points as suggested by the NICE clinical guideline 76 (2009) can be followed and implemented in pharmacies. To roll out a medication adherence programme is not a simple achievement, as indicated by Pringle and Coley (2015:181). For the individual pharmacist who wants to become more engaged in the medication adherence of his/her patients, would help to start with a simple intervention such as engaging patients in the medication adherence process. The working environment and culture of the pharmacy will determine how successful such an intervention might be depending on the acceptability thereof. The pharmacist as an individual may adapt his/her behaviour and by means of the CPD process of the SAPC, for example, by receiving training in engaging the patient. The level of adherence to be targeted in the pharmacy depends on a range of factors that each pharmacist and pharmacy needs to address and the willingness of the management to walk the path towards medication adherence.

Possible barriers acting against the formal introduction of a medication adherence programme in a pharmacy in South Africa might be that it would take much work to implement. Community pharmacies do not generally receive any income for rendering such a service. The focus in pharmacies is not primarily on counselling and medication adherence but rather on helping numbers of patients that need their new or chronic prescription to be filled as soon as possible. Thus only the very basic functions of medication adherence associated with and part of the dispensing process will be implemented. New skills need to be learned as well as training in the principles of medication adherence that is expensive and if there is not a financial incentive at the end, the training will be very difficult to afford. The question is also if the patient him/herself is available and willing to be part of such a programme and needs to benefit financially and health wise from a medication adherence programme.

The possible implementation of a medication adherence programme in pharmacies in the South Africa context may be the topic of future research projects that derive from this research.

In the following section the application of the model in the greater pharmacy environment will be discussed

5.7 Applications for pharmacists, pharmacies and managers

This model can be used by individual pharmacists as well as the management of the pharmacy to comprehend the factors in the pharmacy that influence the dynamics necessary for the effective functioning of the pharmacy. The External Barriers as the primary driver of the system for example need to be controlled continuously as they are barriers perceived as being outside the control of the pharmacist but with an impact on his role in medication adherence. The sub-affinities of External Barriers may provide the pharmacist or the manager with the different factors that are labelled as external factors. Not all of the sub-affinities will act as barriers to all pharmacies, for example the sub-affinity public sector, if the pharmacy is not a public sector pharmacy. Some of the sub-affinities only need to be recognised and not to be acted upon, for example the South African Pharmacy Council if the specific pharmacist or pharmacy does not have any problems with the SAPC. Similarly, the National Department of Health (NDoH) must be kept in mind but may not be the most urgent factor to be investigated at that very moment

The pharmacy managers of the different types of pharmacies, for example corporate pharmacies, public pharmacies as well as single owner pharmacies, can take note of what the perceptions of the average pharmacists are regarding the role of the pharmacist in medication adherence. The visual representation of External Barriers as compiled by this research (Figure 4.1) provides an overall picture of all the affinities and sub-affinities. The researcher developed even smaller factors or sub-sub-affinities under most of the sub-affinities and the extended list may even be introduced as a tick list by the pharmacist or manager. The manager may investigate all the sub-affinities of External Barriers and identify and prioritise the sub-affinities to be further investigated and then act thereupon.

Some of the External Barriers are important for the basic day to day effective functioning of the pharmacy such as problems with availability of medicine, or the workload of pharmacist, or infrastructure. The model can be used as a management tool to assist the manager to ensure that the pharmacy is running as effectively and efficiently as possible. If the manager cannot alter or change some of the problems, then the manager can invest in resources to assist the staff and/or pharmacists with development programmes to be able to cope personally with those factors. It is important to note that the pharmacist must have a measuring system to reflect on

each patient and the outcome of each of the interactions with each individual patient. Only then will the pharmacist be able to measure whether the outcome is positive. It might be a way of measuring individual success of a patient. The application of Disposition, Communication Skills, Professionalism, Informational Role and Motivational Role can also be measured for an individual pharmacist or for a pharmacy as a whole.

- The implementation of the model or then some factors of the model may be to the advantage of the pharmacy as a whole or to individual pharmacists. If the Information Role and related actions are enforced and expected from each and every pharmacist and staff in the pharmacy, it becomes part of the culture of the pharmacy. Besides for the positive impact on the patients and medication adherence, the other positive spinoff is that the pharmacy become well known as a caring pharmacy where the patient always receives information from the pharmacists, even if not requested. Such a culture should be instilled in the staff and maintained and managed by the manager.
- The pharmacists/managers may also use this model of the pharmacists' perceived role in the medication adherence of the patient as a tool to diagnose any problems in the pharmacy regarding medication adherence. The manager can also use this model as a tool to guide him/her in managing the pharmacy in the planning phase of any operation as well as after the event has happened. The manager can control the flow of work in the pharmacy and can with the help of the system identify negative factors beforehand and also see what the impact of such a negative factor as Disposition of the pharmacists is. The manager can also acknowledge the hard work, inputs and impact of the pharmacists on the functioning of the pharmacy as well as the great effort and service they render to the patients.
- If it is discovered that a patient has a problem with medication adherence, this system can be used to map the impact of the pharmacist on the medication adherence and rectify it before the cause, and subsequently, blame are shifted solely to the patient. In other words, the pharmacist can make sure that his/her role in the medication adherence of the patient is correct and can see the impact of a negative affinity on the whole system. Not all people see the whole picture and understand how their small, seemingly insignificant contribution might impact on the larger system.
- The managers can then also understand the importance of The Pharmacists' Portrayal Loop with specific emphasis on Communication Skills, the Informational Role and the Motivational Role. The Pharmacists' Portrayal Loop is visible to the patient and is the Loop that represents the interaction with the patient.

- The personal development of the pharmacists, as well as the development of the other staff in a pharmacy, can be accentuated. The culture of addressing the External Barriers that you can change results in a positive Disposition for the personnel as well as for the pharmacy as a whole.
- Another important point is that the manager or pharmacist allows the patient to become part of the process and the solution when they engage the patient. As soon as they grasp the model, the manager/pharmacist will be sensitive and attend to the maintenance of the External Barriers, attend to the Dispositions of pharmacists and Communication Skills to handle External Barriers, their own Dispositions as well as that of the patient.
- The importance that the updated knowledge has for The Pharmacists' Portrayal Loop needs to be understood by the pharmacist and managers and Continuous Professional Development (CPD) needs to have a high priority by management and individual pharmacist over and above the compulsory CPD programme of SAPC. The pharmacist and management need to make learning and acquiring of new and recent knowledge interesting and a part of their life through the processes of lifelong learning.
- As soon as the pharmacist and management understand the basic functioning of The Turmoil Loop and The Pharmacists' Portrayal Loop and the danger and damage that could be done by the two loops becoming a negative feedback loop or a vicious cycle, they can use the model to develop strategies and actions to maintain the two as virtuous cycles or positive feedback loops with a positive outcome in the pharmacy. The strategies and actions to maintain the loops as virtuous loops can also be used to prevent the loops from becoming vicious and exit the loops before they implode on themselves with consequent damage to the role of the pharmacist in medication adherence.
- The most important and mostly understated role of Communication Skills as the pivot between the two interacting loops, Turmoil loop and Pharmacists' Portrayal Loop, needs to be accepted and expanded by the individual pharmacist as well as the managers. This role acts as the pivot between the loops with a "rescuing" ability to serve and act as a modulator preventing, the possible overflow of the negative energy of a possible vicious cycle from one side to the other. Communication Skills may contain the vicious cycle of any one of the loops and prevent it from contaminating the other loop because of the bidirectional nature of the two loops.
- Managers as well as individual pharmacists can use the importance of Communication Skills in both of the Loops strategically to increase the efficiency and effectiveness of the functioning of the pharmacy as a whole or with a focus on the medication adherence of the patients by

investing in the continuous development and improvement of the Communication Skills of themselves or of all the staff. Twelve skills or areas of development, mostly in the area of Communication Skills, were identified by the researcher and the list may assist the pharmacist or manager to identify the skills which were requested by the respondents to act as a basis for development of him/herself or the rest of his staff.

5.8 Limitations and future directions

5.8.1 Limitations

This study also has certain limitations and these will be briefly discussed.

- In defence of the respondents who participated in this research, the following possible limitation of the research needs to be pointed out. A single focus group was used in the second phase of the IQA research flow for the development and identification of the affinities for the Issue Statements that were used for the remainder of the research programme. The IQA methodology recommends running two focus groups with different participants who are members of the same constituency and reconciling the two sets of affinities according to Northcutt and McCoy (2015:18) to ensure that all possible affinities were captured. A second or even a third focus group could have generated a wider range of affinities than the six of this study. It was only possible to conduct a single focus group session and the six affinities or roles of the pharmacists were conceptualised during the said focus group. The participants of the interviews and the respondents of the Web-based Questionnaire thus only reacted and gave their inputs into the study according to the affinities as conceptualised by the focus group and no other official or structured change was available to increase or alter the affinities. During the third phase of the IQA research flow, the semi-structured interview, all the interviewees accepted the affinities as presented in the Issue Statement and did not question, alter or add another affinity related to the roles of the pharmacist in medication adherence. The researcher also did not find any new information or data that made it necessary to add a new and extra affinity or change the affinities during the coding of the semi-structured interviews. The web-based questionnaires' results also did not necessitate the possible inclusion of more roles in the model. A further study with more focus groups might lead to more affinities and might include a primary outcome that is more medication adherence related.
- Only a single constituency was used for the generation of the affinities. A second or even third constituency with a different power to distance relationship could have generated very specific affinities unique to that constituency. For example a constituency could be pharmacists as

managers of pharmaceutical workplaces such as pharmacies that do not work with patients and their medication adherence all day (greater distance from the phenomenon, but which has a greater power over the implementation and the management of medication adherence). Another constituency could be operational pharmacists who work with patients and their medication adherence all day (closer to the phenomenon but they do not have the power over the implementation of the policy of the pharmacy regarding medication adherence and the management thereof). No comparisons between different systems from different constituencies could be done. To reiterate the point made of a greater number of focus groups in the previous paragraph, the use of more focus groups per constituency could have provided a better opportunity for comparisons between different systems and mind maps. More semi-structured interviews with pharmacists from a second constituency could have added better opportunities for IQA comparisons as well as richness of information.

- The initial planning was to develop a general model of the perceived role of the pharmacist in the medication adherence of the patients and then use a web-based questionnaire, sent to all the pharmacists in South Africa. The incorporation of all the web-based respondents could have added richness and diversity regarding the phenomenon. The response rate of the web-based questionnaire was not satisfactory and the researcher decided to use the data from the web-based questionnaire as well as the data from the IQA semi-structured interviews to build a robust system. The system provided the study with a large set of data and possibilities to use in the examination of the system.
- Another limitation of this study was that only white, Afrikaans-speaking pharmacists from one city in South Africa situated in a rural area, were willing to participate in the focus groups as well as the semi-structured interviews. Pharmacists from other ethnic groups such as Indian, Black and Coloured pharmacists as well as pharmacists speaking other languages as mother tongues such as English or traditional black languages would have added a better diversity to the focus group and the semi-structured interviews. A greater diversity of pharmacists from different parts of South Africa such as rural, cities in different provinces could also have a beneficial impact on the focus group and the semi-structured interviews.
- Regarding the focus groups, another limitation could have been the duration of the focus groups. Private time is a very scarce and highly guarded commodity in the life of a pharmacist and the duration of the focus group on a Saturday afternoon was a limitation. If the pharmacists were available for a longer focus group session the process of generating affinities could have yielded more affinities. Conducting a focus group over two days with shorter sessions but a longer and more thorough and productive focus group overall is something to consider in the future. The focus group process is also quite tiring for practising

and working participants and they do need more time to reflect on the different stages of the focus group. The difference between a focus group and their normal working environment takes time to get used to concentrate the mind on the focus group processes. The researcher conducted a similar focus group amongst the fourth-year pharmacy students of which the data were not used. The difference in the ability of the students to conceptualize abstract principles and generate new information with much more ease and energy in comparison with practising pharmacists was remarkable. The facilitator had experience in conducting focus groups in general and gained a lot of experience in conducting an IQA focus group especially the management of the longer duration thereof and to keep focusing the respondents on the task at hand.

- Another limitation in the study was the poor response rate of the web-based questionnaire. Although 12822 of pharmacists were contacted to participate (according to the Pharmacy Council list of registered pharmacists), only 3.89% responded. The pharmacists who received the invitation to participate in the research did not respond adequately. There may be many ways of explaining the poor response such as pharmacists who are too busy to respond immediately to the invitation and then forget about it, or the pharmacists being apathetic towards any web-based research invitations or towards the phenomenon of patient adherence. Pharmacists could have seen this invitation for participation in the survey as just another external barrier to overcome in a very busy pharmacy, resulting in just more stress on the pharmacist. To cope with the stress the pharmacists made a decision to just ignore the invitation. If the web-based questionnaire had been sent to smaller groups of pharmacists in community pharmacies or hospital pharmacies, or to a corporate pharmacy group, the researcher could have had more control over the response rate of the respondents. Another limitation might have been an over-estimation of the time needed for a practising pharmacist who is not used to the reasoning of new, strange and abstract terminology to complete the questionnaire and the respondents chose not to participate further. A total of 492 respondents accepted the invitation to participate but did not succeed in finalizing the survey although there was ample time to complete the questionnaire at a later and more convenient time.
- The respondents used terms or definitions such as adherence and compliance interchangeably. There seems to be confusion amongst the pharmacists that some of them do believe they talk about adherence but they are still describing or practising compliance.

These limitations did not compromise the integrity of the research process.

5.8.2 Future directions

This study is the first of its kind where the perceptual system of pharmacists in South Africa regarding their role in medication adherence of patients was developed. Such original research provides ample possibilities leading to possible future research projects. By paying attention to the limitations as discussed above, the research study could be replicated by means of solving the limitations and the results will be a study with more depth and richness.

- The system as developed in this study can serve as the foundation for future studies by expanding on the results to develop a more representative system. Smaller and more focussed studies by means of comparison between different constituencies within a given sector could be done. For example, the pharmacists of corporate pharmacies' perception of their role in medication adherence of the patients can be compared to that of the pharmacists in the public sector. Another possibility is the difference in perception of the manager of the pharmacy far from the phenomenon and close to the power to do something about the phenomenon and the operational pharmacist who is close to the phenomenon but does not have power over the phenomenon.
- The impact that External Barriers have on the practice of pharmacy in South Africa according to the respondent's need to be investigated and solutions need to be found to assist the pharmacists confronted with such External Barriers. The scope, intensity and importance of the different External Barriers need to be established. The development of interventions to assist the pharmacists to cope with the consequences of the External Barrier such as the non-availability of medication can be investigated.
- Other possible future studies could be the devolution of and skills training for patient-centred communication focussed on medication adherence. The implementation thereof, measuring of successful implementation and evaluation or future implementation also needs to be investigated.
- Another possible future research project is to determine what the patient's perception is of his/her own personal medication adherence and whether the pharmacist plays any role at all. The need to hear the patient's side of the story is very important as the patient is the final and ultimate decision-maker to adhere to a treatment regime and prescribed drugs.
- This study pointed out that that the concept of medication adherence and the role of the patient and the pharmacist are not clearly understood by the respondents. Theoretical training regarding theory of medication adherence (compared to compliance), training of management of adherence and skills development can be implemented and the impact thereof can be

measured, updated and further training can be undergone. A model with the financial implications for implementation, benefits for the patient and pharmacist as well as the third party payer (medical funds in the case of the public sector) can be developed and researched. An IQA study can be used to understand and develop a model indicating the primary drivers and primary outcomes of such an implementation of medication adherence programmes from the viewpoint of the patient, operational pharmacists and managerial pharmacists.

- Another study that needs to be done is the health-care cost if a more comprehensive adherence-based service is rendered in a pharmacy. Costs such as time, specialised training for pharmacists, additional pharmacists and pharmacy related personnel, infrastructure and more need to be investigated. The cost of implementation of such a service and the long term maintenance thereof compared to the reduced costs in terms of quality of life, fewer hospital visits and even as reductions in the usage of medicine by the patient also need to be investigated.
- As the South African health care is moving towards a National Health Insurance (NHI) model, research is needed to investigate the possible role of the pharmacists in such a new health-care model where the practice of pharmacy and the current role of the pharmacist may be changed for ever. The role of the pharmacists regarding the medication adherence should not change for the worse but for the better for the benefit of the pharmaceutical profession, pharmacist and ultimately the patient. Research can assist the pharmacist in providing proof of the possible and most important non-negotiable role of the pharmacists regarding medication adherence. More recent studies, especially with NHI in mind, can be conducted that will introduce and hopefully dictate the role of the pharmacists in medication adherence by using the model as developed by this study as basis.
- The system as developed by this study could be developed into a more user-friendly tool to assist managers and pharmacists to increase the medication adherence of their patients in their pharmacy in a patient-centred approach to medication adherence.

In the next session the conclusions of this research study are presented.

5.9 Conclusion

The major purpose of this exploratory study was to understand what the perceptions are of the pharmacists in South Africa regarding their role in the medication adherence of a patient. The pharmacist is usually responsible to dispense the medicine to the patient as prescribed by the prescriber. As pointed out in the literature study in Chapter 2, the pharmacist is also partly

responsible for the medicine therapy outcomes of pharmaceutical care according to the South Africa Pharmacy Council.

An analysis of the IQA interviews revealed six main affinities, namely External Barriers, Disposition, Communication Skills, Professionalism, Information Role and Motivational Role. Each of these categories or affinities consists of a series of sub-categories or sub-affinities. A total of 41 Sub-affinities were identified by the researcher during the coding phase.

The relationship data (theoretical questions) of both the web-based questionnaire and the individual interviews were combined and produced a single set of data of the nature of the relationships between affinities. By means of the theoretical coding of all the affinities and the relationships between them, a perceptual system was built of the role of the pharmacists regarding the medication adherence of the patients. The system consists of the affinities or elements and the relationships between them.

The system was examined and the researcher gained insight in the relationships between the affinities and the resultant effect on the total system. The gained insight was put into practice by examining the cause and effect implications of different scenarios on the system. Solutions for common problems were presented regarding the role of the pharmacists in medication adherence. External Barriers were identified as the primary driver of the system with Communication Skills in the modulator role and Motivational Role as the primary outcome. The respondents indicated the Motivational Role as the primary outcome (primary role) regarding their roles in medication adherence.

The system produced two identifiable loops or cycles, each with its own affinities and influences. The first loop, namely The Turmoil loop, consists of External Barriers as the primary driver of the system influencing Disposition of the pharmacist and influencing Communication Skills. Communication Skills either influences External Barrier Information Role, which has an influence on Motivational Roles as the primary outcome of the system. The Motivational Role in itself has an influence on Communication Skills completing the loop known as The Pharmacists' Portrayal Loop.

Communication Skills is the only affinity that influences both The Turmoil and The Pharmacists' Portrayal Loops. The influence can be negative or positive in both loops. Most importantly, it can prevent The Turmoil Loop from becoming a vicious cycle spinning out of control to the detriment of both the pharmacist and the patient regarding medication adherence.

The External Barriers are a reality in the world of the pharmacist in South Africa that the pharmacist cannot escape or has limited power and authority over. They are factors beyond

his/her control but the factors determine his/her practice and ultimately the interaction and relationship with the patient and medication adherence. Factors such as the Availability of medicine will have a more direct influence on all pharmacists especially if only made aware of the situation with the patient standing in front of them. Pharmacists experience this problem very negatively especially because they cannot control it at all and now have to help the patient or sometimes carry the brunt of the patient's anger. An external factor such as medicine that is not available *"affects the pharmacist's role in serving patients, it gives them stress and that can be seen as bad attitudes"*.

Disposition as one of the elements or affinities of the system was conceptualised as "the pharmacists' attitude within his relationship with his patients" by the pharmacists and consisted of the following sub-affinities: conditions that elicit negative behaviour, resulting behaviour towards the patient, resulting attitude of pharmacist, result of positive Disposition of pharmacist and comprehension of professional demands. The effect of the influence of Disposition on Communication Skills can either be positive or negative. A pharmacist with a positive attitude may find solutions to communication problems and the pharmacist will make a plan to communicate with the patient. The negative effect of a negative Disposition can affect the Communication Skills and interaction with the pharmacist. A negative Disposition will make the communication ineffective up to the point that the pharmacist cannot communicate properly with the patient any more resulting in a possible negative impact on medication adherence.

Communication Skills were conceptualised by the respondents as "a set of skills needed by the pharmacist so that all the patients can understand the pharmacist". The affinity consists of the following sub-affinities: Addresses the patient's needs, Comprehension, Context of communication, Checks patient's understanding and Ability to follow a plan, Cultural differences, Patient's level of medical cognition and Skills needed by the pharmacist. The respondents considered Communication Skills as very important and identified several skills related to communication for which training and development are requested to help the patient in the medication adherence of the patient. These skills included empathy in communication, listening skills, two way communication with the patient, listening skills and more. A patient-centred approach in communication strengthened and supported by training and specific skills development will be beneficial to the pharmacist in his/her role in medication adherence.

Professionalism is conceptualised as "more than professional appearance and behaviour, a way of being" by the respondents and consists of the following sub-affinities: Image, Appearance, Responsibility, Behaviour, Role of the Pharmacist, Knowledge and Relationship. It is described as a *"core value - what one believes in - thus it is a major driver of your behaviours, such as sharing your knowledge to assist patients"*. A very important statement is made by the participants

regarding Professionalism as *“professionalism influences your informational role because if they do not see you as a professional person, they are not going to consider your information as being of value.”*

The description of the Information Role according to the respondents is “Functional knowledge that the pharmacist shares with the patients”. The Information Role consists of the following sub-affinities: Sources of information, Special patients, Information and Pharmacist. The Information Role is where the pharmacist shares the necessary information regarding the patient’s medicine, treatment, outcomes and more with the patient. The pharmacist may decide to share the bare minimum of information with the patient to abide by the Ethical rules or can walk the extra mile and really care and assess the patient’s information needs, monitor the correct use of apparatus and provide the information really needed by the patient.

The Information Role is essential for an effective Motivational Role. Knowledge leads to confidence and has a positive influence on the Motivational Role according to some of the participants: The patient who knows what he needs the outcomes of his therapy to be, is better motivated and more adherent. There is a relationship between the information the pharmacist provides to the patient and the motivation of the said patient.

The Motivational Role is according to the respondents “All your actions in order to motivate the patient to adhere”. The Motivational Role of the pharmacist consists of the following sub-affinities: Inform, Management of adherence, Patient self-responsible and Motivation.

The researcher came to the conclusion that the perceptual system of the pharmacists who participated in this research is not a true representation of medication adherence but rather a system reflecting compliance to medication. This may have implications for the whole health-care system. Even though medication adherence is being recognised as the concept that ultimately positively impacts on patient quality of life, pharmacists in South Africa are being constrained by cost and time restrictions. One simply has to look at the patient-pharmacist ratio as well as, for example, the patient-doctor ratio and other health care providers in South Africa to grasp the implications. Although the results of the research did not live up to the expectations of the researcher and the primary role or outcome of the model was not adherence, the pharmacists who participated in the research showed a significant and sometimes an unknowing shift towards the principles of a formalised medication adherence structure. It may be possible that the respondents do not really grasp the working difference between the terms adherence and compliance. If each and every pharmacist understands the basic principles of medication adherence and recognises the possible role, even minutely small, in the best or even under the

worst of situations, the pharmacist can contribute to the medication adherence of the patient and will have a positive impact in the life of the patient.

The respondents perceived that they as pharmacists have a role to play in the medication adherence of their patients and willingly accepted the role. The study showed that pharmacists really care for their patients and do want to help the patient to the best of their ability even with External Barriers that hinder the service and care process.

This model can be used by individual pharmacists as well as the management of the pharmacy to comprehend the factors in the pharmacy that influence the dynamics necessary for the effective functioning of the pharmacy and ultimately the improvement of the medication adherence of the patient. The pharmacy managers of the different types of pharmacies, for example, corporate pharmacies, public pharmacies as well as single owner pharmacies, can take note of what the perceptions of the average pharmacists are regarding the role of the pharmacist in medication adherence. The implementation of the model may be beneficial to the pharmacy as a whole or individual pharmacists. If the Information Role and related actions are enforced and expected from each and every pharmacist and staff in the pharmacy they become part of the culture of the pharmacy. Except for the positive impact on the patients and medication adherence, the other positive spinoff is that the pharmacy will become well-known as a caring pharmacy where the patient always receives information from the pharmacists even if not requested.

A few limitations were identified such as the lack of diversity in the focus group for example and some other minor methodology-related limitations. These limitations did not compromise the integrity of the research process, the research findings or conclusions. This study opens the way for several future investigations regarding pharmacists and medication adherence. Smaller and more focussed studies by means of comparison between different constituencies can be done. For example, the pharmacists of corporate pharmacies' perception of their role in medication adherence of the patients can be compared to that of the pharmacists in the public sector. The impact that External Barriers have on the practice of pharmacy in South Africa according to the respondents needs to be investigated and solutions need to be found to assist the pharmacists confronted with such External Barriers. Other possible future studies could be the devolution of and skills training for patient-centred communication focussed on medication adherence. As South African health care is moving towards a National Health Insurance (NHI) model, research is needed to investigate the possible role of the pharmacists in such a new health-care model where the practice of pharmacy and the current role of the pharmacist may be changed forever.

This study was the first to be done on the perceptions of South African pharmacists on their role in the medication adherence of their patients and to provide new and previously unknown

information in the format of a system and model to the benefit to all pharmacists in South Africa. The study gives a snapshot of the profession at that point in time uncovering several previously unknown elements impacting either positively or negatively on the pharmacist fulfilling his/her important role in medication adherence.

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ANNEXURE A: WEB-BASED QUESTIONNAIRE

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I would like to thank you, yet again, for taking part in this research.

During the previous phase of the research project I conducted focus group discussions and personal interviews with pharmacists. **Based on the data collected, 6 affinities were developed that describe the views of pharmacists regarding their role in medicine adherence in South Africa.**

[To complete this survey in Afrikaans, click here.](#)

Name of affinity	Description of the affinity
1 Professionalism	More than professional appearance and behaviour. A way of being.
2 External barriers	Factors beyond your control that determine your practice as a pharmacist.
3 Motivational role	All actions undertaken by the pharmacist in order to motivate the patient to adhere.
4 Communication skills	The set of skills a pharmacist needs so that all of his/her patients can understand him/her.
5 Information role	Practical and functional knowledge (information) that the pharmacist shares with his/her patients.
6 Disposition	The attitude the pharmacist assumes in his/her relationships with his/her patients.

The pharmacists who participated in the personal interviews and focus groups were asked to describe the relationships between the different affinities. These descriptions were used to develop a model very specific to the pharmacists who participated in the above mentioned discussions. Every pharmacist in South Africa is however a unique individual and will have a unique view on the relationships between the affinities. Therefore, there is no correct or wrong opinion on the relationships, just unique and personal viewpoints. Every person's unique view is influenced by several factors in your life, which includes previous experiences, experiences in the workplace, events, work environment etc.

In South Africa pharmacists are geographically very widely distributed, they work in a great variety of work environments and in varying positions, just to mention a few differences. During this phase of the research project I would like to collect the opinions of as many as possible pharmacists in South Africa on the role pharmacists play in the medicine adherence of patients.

In each case, please read through the description carefully before you make your choice.

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By accepting these terms and conditions, I declare that I willingly participate in the survey titled *"Pharmacists and medication adherence"* for the researcher : *Willem Basson*.

I understand that myresearchsurvey.com will ask for my p-number and provide it to the researcher together with my responses.

I further understand that my information is stored in a controlled environment and access to this information is limited to the researcher and key system administrators at myresearchsurvey.com (bound by confidentiality agreements). Myresearchsurvey.com provides a platform for researchers to conduct surveys with, and takes no responsibility whatsoever for any content, copyright infringements or misconduct on the researcher's behalf.

I understand by not accepting the terms and conditions, I cannot complete this survey.

In addition, the researcher specified the following terms and conditions:

- I have read the explanation about this study.
- I hereby consent to take part in this study
- However I realise that my participation is voluntary and I am free to withdraw from the study at any time
- I understand that all the information collected from this study will be collected anonymously, kept at and stored at a safe place at the North-West University and kept strictly confidential.
- I understand that the data may be reproduced anonymously in publications, presentations and reports

☒ I accept the terms and conditions

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The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's professionalism and external barriers?

1.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

- ☒ Professionalism influences External barriers directly
- ☐ External barriers influence Professionalism directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Professionalism influences External barriers directly

2.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's professionalism and his/her motivational role?

5.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

- ☒ Professionalism influences Motivational role directly
- ☐ Motivational role influences Professionalism directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Professionalism influences Motivational role directly

6.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.
You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's professionalism and his/her communication skills?

9.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

- ☒ Professionalism influences Communication skills directly
- ☐ Communication skills influence Professionalism directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Professionalism influences Communication skills directly

10.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's professionalism and his/her information role?

13.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

- ☒ Professionalism influences Information role directly
- ☐ Information role influences Professionalism directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Professionalism influences Information role directly

14.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's professionalism and his/her disposition?

17.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

- ☒ Professionalism influences Disposition directly
- ☐ Disposition influences Professionalism directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Professionalism influences Disposition directly

18.

Professionalism = More than professional appearance and behaviour of the pharmacist. A way of being.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between external barriers and the pharmacist's motivational role?

21.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

- ☒ External barriers influence Motivational role directly
- ☐ Motivational role influences External barriers directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: External barriers influence Motivational role directly

22.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere. You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between external barriers and the pharmacist's communication skills?

25.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

- ☒ External barriers influence Communication skills directly
- ☐ Communication skills influence External barriers directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: External barriers influence Communication skills directly

26.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between external barriers and the pharmacist's information role?

29.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

- ☒ External barriers influence Information role directly
- ☐ Information role influences External barriers directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: External barriers influence Information role directly

30.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between external barriers and the pharmacist's disposition?

33.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

- ☒ External barriers influence Disposition directly
- ☐ Disposition influences External barriers directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: External barriers influence Disposition directly

34.

External barriers = Factors beyond your control that determine your practice as a pharmacist.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.
You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's motivational role and his/her communication skills?

37.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

- ☒ Motivational role influences Communication skills directly
- ☐ Communication skills influence Motivational role directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Motivational role influences Communication skills directly

38.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's motivational role and his/her information role?

41.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

- ☒ Motivational role influences Information role directly
- ☐ Information role influences Motivational role directly
- ☐ No direct relationship

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Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Motivational role influences Information role directly

42.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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59% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's motivational role and his/her disposition?

45.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

- ☒ Motivational role influences Disposition directly
- ☐ Disposition influences Motivational role directly
- ☐ No direct relationship

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61% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Motivational role influences Disposition directly

46.

Motivational role = All actions undertaken by the pharmacist in order to motivate the patient to adhere.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.
You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Done

64% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's communication skills and his/her information role?

49.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

- ☒ Communication skills influence Information role directly
- ☐ Information role influences Communication skills directly
- ☐ No direct relationship

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66% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Communication skills influence Information role directly

50.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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70% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's communication skills and disposition?

53.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

- ☒ Communication skills influence Disposition directly
- ☐ Disposition influences Communication skills directly
- ☐ No direct relationship

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71% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Communication skills influence Disposition directly

54.

Communication skills = The set of skills a pharmacist needs so that all of his/her patients can understand him/her.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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Done

75% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

What is the relationship between the pharmacist's information role and his/her disposition?

57.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

- ☒ Information role influences Disposition directly
- ☐ Disposition influences Information role directly
- ☐ No direct relationship

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76% complete

Relationships

The program will guide you from this point on to indicate the relationship between the affinities according to you opinion. You will also be given the opportunity to supply a motivation for your choice, this is not mandatory though.

Motivate: Information role influences Disposition directly

58.

Information role = Practical and functional knowledge (information) that the pharmacist shares with his/her patients.

Disposition = The attitude the pharmacist assumes in his/her relationships with his/her patients.

You now have the opportunity to motivate the nature of the relationship as you have indicated above with the help of an example.

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80% complete

Demographics

Please answer

61. Please provide the name of the town or city where you work.

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82% complete

Demographics

Please answer

62. Please indicate the province in which you spend most of your working time by ticking the appropriate box.

☐ Eastern Cape	☐ Free State	☐ Gauteng
☐ KwaZulu-Natal	☐ Limpopo	☐ Mpumalanga
☐ Northern Cape	☒ North West	☐ Western Cape
☐ Other		

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83% complete

Demographics

Please answer

63.

Please indicate your gender by ticking the appropriate box.

☒ Male

☐ Female

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84% complete

Demographics

Please answer

64.

Please provide your year of birth.

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86% complete

Demographics

Please answer

65. Please indicate your home language by ticking the appropriate box.

☒ Afrikaans	☐ English	☐ isiNdebele
☐ isiXhosa	☐ isiZulu	☐ Sesotho sa Leboa
☐ Sesotho	☐ Setswana	☐ siSwati
☐ Tshivenda	☐ Xitsonga	☐ European language
☐ Eastern language	☐ Other	

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87% complete

Demographics

Please answer

66. Please indicate the capacity in which you are appointed currently by ticking the appropriate box

- ☒ Permanent capacity
- ☐ Temporarily capacity
- ☐ Locum pharmacist
- ☐ Fixed-term contract
- ☐ Other

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88% complete

Demographics

Please answer

67. Please indicate the number of days per week that you work ticking the appropriate box.

☐ 1 day

☐ 2 days

☐ 3 days

☐ 4 days

☒ 5 days

☐ 6 days

☐ 7 days

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89% complete

Demographics

Please answer

68. Please indicate the working environment in which you spend most of your time by ticking the appropriate box

☐ Hospital pharmacy	☐ Community pharmacy	☐ Wholesale pharmacy
☐ Distribution pharmacy	☐ Manufacturing sector	☒ Academic institution
☐ Managed Health Care Organisation	☐ Statutory environment	☐ Pharmacy Association of South Africa
☐ Other		

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93% complete

Demographics

Please answer

71.

Please indicate the position that you hold and where you spend most of your time by ticking the appropriate box

☐ Managerial position

☒ Operational position (e.g. dispensing, lecturing, administration, compounding etc.)

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96% complete

Demographics

Please answer

73. Please indicate the how long you have been in this position

☐ Less than 3 months	☐ 3 months to 1 year	☐ 1 year
☐ 2 years	☐ 3 years	☐ 4 years
☐ 5 years	☐ 6 years	☐ 7 years
☐ 8 years	☐ 9 years	☐ 10 jaar
☐ 11 years	☐ 12 years	☐ 13 years
☐ 14 years	☐ 15 years	☐ 16 years
☐ 17 years	☐ 18 years	☐ 19 years
☐ 20 years	☒ More than 20 years	

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97% complete

Demographics

Please answer

74.

Please indicate the highest qualification that you have achieved by ticking the appropriate box.

- ☐ Diploma in Pharmacy
- ☐ B.Pharm or related pharmacy qualification
- ☒ Pharmacy related master's degree
- ☐ Pharmacy related doctoral degree
- ☐ Pharm.D degree
- ☐ Master's degree in Business Administration (MBA)
- ☐ Any other post-graduate qualification in business management
- ☐ Any other qualification not mentioned above

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99% complete

Demographics

Please answer

75. Please indicate whether you would like to receive feedback form the researcher regarding the results of the research.

☐ No

☒ Yes

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Thank you!

Thank you for your participation in this project!

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ANNEXURE B: POSTER PRESENTATIONS

Poster Presentation 1

The FIP Centennial Congress (International Federation of Pharmacists)

Amsterdam

3 to 8 October 2012

Poster Presentation 2

26th Conference of South African Association of Hospital and Institutional Pharmacist

Champagne Castle

South Africa

2012

Comparing mind Maps of Pharmacists regarding their Role in Medication Adherence in a South African Setting

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POSTER PRESENTATION 2

What are the Perceptions of Pharmacists in a Focus Group regarding their Role in Medication Adherence?

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Background

The World Health Organization (WHO) referred to the non-adherence to medication as a "worldwide problem of striking magnitude" and improving adherence to medication has become a priority to health care researchers and policy makers. Research suggests that 30% to 50% of patients do not take their medicine for chronic conditions as prescribed (Horne et al., 2006: 16). The costs of non-adherence to patients prove to be a missed opportunity for treatment gain and, if their condition worsens, a possible decline in their quality of life according to Clifford et al. (2010: 73). Adherence also emerges as a multi-faceted phenomenon where the best results are obtained if more than one facet can be addressed simultaneously. Christensen (2004: 3) suggested the following working definition of adherence: "patient adherence reflects the extent to which a person's actions or behaviour coincides with advice or instruction from a health care provider intended to prevent, monitor, or ameliorate a disorder".

In the South African health care system the underlying philosophy of the pharmacy profession spells it out that pharmacists are committed to fulfil the health care needs of South Africa and its people by being, *inter alia*, providers of pharmaceutical care by taking responsibility for the therapeutic outcome of therapy and by being actively involved in the design, implementation and monitoring of an effective pharmaceutical service (SAPC, 2010: 2). The pharmacist can make an important difference as he/she is most likely the last person in the health care system that the patient interacts with before he/she returns home with an intention of action. It can be concluded that patient compliance (adherence), as well as other roles, is a very important and essential part of the Scope of the South African Pharmacist and thus part of his/her responsibility as a pharmacist.

Objective

What does the pharmacist have to say about all of these arguments and what is the role he/she sees for himself/herself regarding medication adherence? The general research objective of this study is to use the Interactive Qualitative Analysis (IQA) approach to compile pharmacists' cognitive mind maps regarding the perceptual systems of their role in South Africa towards medication adherence of patients.

IQA Study design

The IQA research design provided tools through the IQA research design cycle to:

- articulate problems of interest e.g. the role of the pharmacist in the use of medicine and medication adherence by the patient;
- identify pharmacists in South Africa as a constituency (a group of people who have a shared understanding and an interest in the phenomenon of medication adherence); and
- state the research questions:
 - What are the components of the pharmacists' perceptual system regarding their role in medication adherence in a South African context?
 - How do the above-mentioned components relate to each other in a perceptual system? (Northcutt & McCray, 2004: 44)

With the help of the IQA research design protocol, a focus group with 13 pharmacists were constructed (See Table 1) according to set criteria (Northcutt & McCray, 2004: 30). The pharmacists (who have varied opinions and experiences but who share a common perspective as they all were practising pharmacists in South Africa) identified the affinities (components) of the system that represents the focus group's experience of the problem by answering the following issue statement: *In your opinion, what is the role of the pharmacist regarding medication adherence in South Africa?*

A process of inductive coding (identifying the affinities) as well as axial coding (naming, organizing and refining of affinities) followed and a name and description of each affinity was developed. An ART (Affinity Relationship Table) was developed next as part of the theoretical coding stage of the research where the relationships between each pair of affinities were recorded (See Table 3). A total of 15 relationships were chosen according to the Pareto Protocol for inclusion in the group IRD as they account for 83% of the variation in the system and drivers and outcomes were identified.

The SID (System Influence Diagram or mind map) that is the visual representation of the entire system of influences and outcomes was drawn by representing the information present in the IRD (See Table 4). The first version of the SID contains each link present in the IRD and is referred to as the Cluttered SID (See Figure 1). As it can be very difficult to interpret, the redundant links were removed by applying the richness-parsimony dialectic protocol, and the final Uncluttered SID (Mind map) (See Figure 2) was drawn that represented the reality of the focus group (Northcutt & McCray, 2004: 44).

With IQA the usual issues of subjectivity and validity are less problematic because the participants code most of their data with minimum external influence and the product is less being contaminated by the researcher's own worldview and assumption of the data.

Results

Elements (Affinities) of the system:

The focus group perceived the following affinities to be of importance to their role in medication adherence: Professionalism, External barriers, Motivational role, Communication skills, Information role and Disposition (See Table 2)

Table 1: Demographic Information of Pharmacists

Gender	Female	Male		
Age (Years)	11	2		
Experience (Years)	20 - 29	30 - 39	40 - 60	
Qualifications	3	7	3	
Working environment	1 - 9	10 - 19	20 - 40	
Qualifications	4	6	3	
Working environment	B.Pharm / equivalent	M.Pharm / equivalent	Ph. D.	
Working environment	8	4	1	
Position	Academy	Institutional: Private	Institutional: Public	Manufacture
Position	2	2	1	
Position	Locum	Retail Community: Independent	Retail Community: Corporate	
Position	1	4	2	
Position	Manager: Manufacture	Manager: Academic	Manager: Retail	Academic
Position	1	1	5	1
Position	Pharmacist			

Table 2: Description of Affinities

1	Professionalism	More than professional appearance and behaviour. A way of being
2	External barriers	Factors beyond your control that determine your practice as a pharmacist
3	Motivational role	All your actions in order to motivate the patient to adhere
4	Communication skills	Set of skills needed by the pharmacist so that all of the patients can understand him/her
5	Information role	Functional knowledge that the pharmacist share with the patients
6	Disposition	The pharmacist's attitude within his relationship with his patients

References

- CHRISTENSEN, A.J., 2004. Patient adherence to medical treatment regimens: bridging the gap between behavioural science and biomedicine. New Haven, CT: Yale University Press, 263 p.
- CLIFFORD, S., GARFIELD, S., ELIASON, L. & BARBER, N., 2010. Medication adherence and community pharmacy: a review of education, policy and research in England. *Pharmacy practice*, 8(2)77-86, Apr-Jun.
- NORTHCUIT, N. & MCCRAY, B., 2004. Interactive qualitative analysis: a systems method for qualitative research. London: Sage, 443 p.
- SAPC (South African Pharmacy Council), 2010. Good pharmacy practice in South Africa, 4th ed. Ansoola, 243 p.

Table 3: Affinity Relationship Table (ART)

Affinity Pair Relationship	→	←	↔	Total
1 ↔ 2	3	7	3	13
1 ↔ 3	13	0	0	13
1 ↔ 4	8	3	2	13
1 ↔ 5	9	4	0	13
1 ↔ 6	4	9	1	13
2 ↔ 3	10	2	1	13
2 ↔ 4	7	2	4	13
2 ↔ 5	12	1	0	13
2 ↔ 6	13	0	0	13
3 ↔ 4	2	9	2	13
3 ↔ 5	3	9	2	13
3 ↔ 6	2	11	0	13
4 ↔ 5	12	1	0	13
4 ↔ 6	3	8	2	13
5 ↔ 6	0	12	1	13

Table 4: IRD - Sorted in Descending Order of Δ

	1	2	3	4	5	6	OUT	IN	Δ
1									
2									
3									
4									
5									
6									
OUT									
IN									
Δ									

Figure 1: Cluttered Systems Interrelationship Diagram SID (MIND MAP)

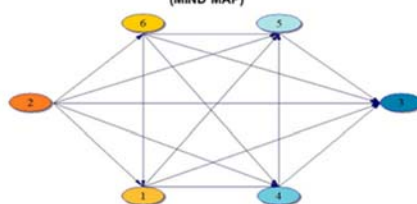


Figure 2: Uncluttered SID (MIND MAP)



Conclusion

This research is the first phase of a much broader research activity. The IQA method will be used in personal interviews with pharmacists to refine the affinities. It became clear that the different sectors have different realities and different experiences and may have different Mind Maps of their role in medication adherence. The insight into the perception of the pharmacist regarding his/her role in medication adherence is the starting point of the augmentation in the patient's medication adherence.



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ANNEXURE C: ADDITIONAL IQA METHODOLOGY AND RESULTS

1 Phase 1 Research design protocol

The researcher developed the research design as Phase 1 of the research flow of the IQA Research Flow (Chapter 3.6.1). The research design was also presented in the following section.

1.1 Problem statement

The researcher developed the problem statement according to the method discussed in Chapter 3.6.1 (Northcutt & McCoy, 2015:8, Northcutt & McCoy, 2016b). The problem statement can be seen in Table 1.1 below. A brief discussion follows.

Table 1.1: Research Design Protocol for Pharmacists' perceptions of their role in medication adherence in South Africa: Problem Statement

A: Problem
Scenario
<i>Medication adherence is a global problem. The patient is not always solely responsible for adherence to his treatment in general and more specifically his use of the medicine prescribed. It can either be acute medicine or chronic medicine that needs to be taken correctly immediately over a long period of time that the patient needs to adhere to. If the patient does not drink the medicine at the correct time, correct dose and when he/she is supposed to, everything is of no use. The time of the prescriber, as well as the time of the pharmacist dispensing the medicine and the money that was paid for the prescriber and the medicine were futile. The moment the pharmacist hands over the medicine to the patient it is out of the hands of the pharmacist. The patient may obtain the best medicine that is available but if it is not used correctly, the patient will not become healthier or manage his/her chronic disease correctly. The end result is more pressure on the Health Care System as the same patient will be back in the system at a later stage in a worse condition. The patient as well as his family and friends and support group are under pressure again.</i>
<i>There are many factors involved in the adherence to medicine including the patient him/her self, availability of medicine, healthcare system, the role of healthcare professionals such as pharmacists, costs of medication and many others.</i>
<i>A lot of research has been done investigating this problem of non-adherence to treatment in general as well as medicine non-adherence.</i>
<i>The problem of medicine non-adherence can be investigated from many angles but the researcher wants to know more regarding the role of healthcare professionals in medication adherence. To be more specific the role the pharmacists are playing in medicine non-adherence of the patients.</i>
<i>The pharmacist is amongst other dispensers usually the last person to hand the patient his/her medicine so the pharmacist must have a role or must have an impact (positive or negative) regarding the medication adherence of the patient.</i>

A: Problem			
<i>The role the pharmacist is playing can be investigated from the viewpoint of the patient or from the pharmacist him/herself. What do South African pharmacists think about their role in medication adherence of patients?</i>			
Role of the researcher		Purpose of the study	
X	Academic researcher	X	Academic research
X	Graduate student	X	Dissertation
☐	Consultant	☐	Solving a problem
☐	Internal Organization Research	X	General understanding of a problem
☐	Other _____	☐	Other _____
Readers/Users of the study results			
<i>The researcher is also a lecturer at a Pharmacy School and may gain information and insight into the problem and transfer the information to the pharmacy students.</i> <i>The staff at the School of Pharmacy especially in the Department of Pharmacy Practice consider the perceptions of the pharmacists in general regarding his/her working environment as important.</i> <i>The Pharmacists in the profession in South Africa working with patients all day long may gain insight into what other pharmacists perceive as their role in medication adherence.</i> <i>The South African Pharmacy Council may be interested in the perceptions of the pharmacists regarding their role in medication adherence</i> <i>The South African Pharmaceutical Society may be interested as it represents some of the pharmacists of South Africa.</i> <i>Patients having difficulties with medication adherence may gain insight into what their pharmacists' perceptions are regarding the role of the pharmacists in the patient's problem.</i> <i>Pharmacists on a global level may be interested in the answer to the problem</i> <i>Researchers on a global as well as local level may gain more knowledge regarding medication adherence and the role of pharmacist.</i> <i>Researchers using the IQA methodology in qualitative studies.</i>			
Problem question			
What do pharmacists in South Africa think about the role of the pharmacist in medication adherence of the patients whom he/she provides medication for? Do they think that they do have a role to play or is it solely the responsibility of the patient to use the medicine according to the prescriber's rules?			
Domain			
<i>Pharmacists working in all of the pharmaceutical sectors in South Africa. Emphasis will be placed on those pharmacists working with patients, dispensing medicine, and managing the pharmacies in the public and private sectors of South Africa in both hospital and retail pharmacies</i>			
Potential causes of the problem or success			
- Pharmacists do not accept responsibility for medication adherence of patients - Pharmacists do not prefer to communicate with	- Pharmacists do care about their patient's medication adherence - Pharmacists do want to care for their patients	- The patients have good relationships and trust in their pharmacists - The patients listen to the pharmacists	

A: Problem		
patients regarding their medication adherence. • Pharmacists do not prefer to talk to patients at all. • Pharmacists do not really care about their patients' medication adherence • Pharmacists are just too busy to care and pay attention to the patients' medication adherence. • Pharmacists argue that medication adherence of the patient is the patient's own responsibility and has nothing to do with the dispenser of such medicines	• Pharmacists prefer to talk to patients about their medication adherence • All the pharmacists in all the different pharmacies want to help their patients. • The pharmacist do have enough time and resources to actively interact with the patient regarding medication adherence. • Pharmacists have enough knowledge and skills regarding medication adherence.	• The patients do take their medicine as they should • Patients do not take their medicine as they should. • Medicines are not available • Medicine is too expensive

1.1.1 Scenario

In the first step a **scenario** of researchers' perceptions and knowledge of the "problem" of the possible role of pharmacists in medication adherence in South Africa was written down (Table 1.1 above).

1.1.2 The role of the researcher, purpose of the study and readers/users of the study results

The purpose of the study was to conduct research, complete a doctoral thesis to establish a general understanding of the problem. The possible readers or users of the research results were indicated in Table 1.1 with, *inter alia*, teaching pharmacy students, researchers globally and in South Africa, users of the IQA method in qualitative research and more.

1.1.3 Problem question, domain and potential causes or successes regarding the problem

Questions to articulate the problem were identified as well as the domain where the study would focus upon were identified. Potential causes and successes were identified and this is presented in Table 1.1. The possible causes identified were *inter alia* that pharmacists do not accept responsibility for medication adherence of the patients or pharmacists do want to care for their patients and more.

1.2 The identification of constituencies

The identification of possible constituencies as well as possible comparisons between them were the next step after the problem settlement and the constituencies identified for possible use can be seen in Table 1.2 below.

1.2.1 Results of determining constituencies

Table 1.2 Research Design Protocol for Pharmacists' perceptions of their role in medication adherence in South Africa: Constituencies and comparisons

B: Constituencies		
Constituency	Distance from the phenomenon (Close to Far)	Power to influence the phenomenon (High to Low)
Individual		
A: Operational pharmacists from private and public pharmacies in South Africa	Close	Least
B: Operational pharmacists working in private corporate pharmacies in South Africa	Close	Least
C: Operational pharmacists working in private single owner pharmacies in South Africa	Close	Medium
D: Operational pharmacists working in public hospital pharmacies in South Africa	Close	Least
E: Operational pharmacists working in private hospital pharmacies in South Africa	Close	Medium
Intermediary		
F: Pharmacists (web-based questionnaire) working in a variety of pharmaceutical sectors in South Africa.	Average	Medium
G: Pharmacists (focus groups and individual interviews) working in a variety of pharmaceutical sectors in South Africa	Average	Medium
Authority		
H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa	Far	High
I: Pharmacists with managerial responsibilities working in private corporate pharmacies in South Africa	Far	High
J: Pharmacists with managerial responsibilities working in private single owner pharmacies in South Africa	Average	High
K: Pharmacists with managerial responsibilities working in: Public hospital pharmacies in South Africa	Far	High
L: Pharmacists with managerial responsibilities working in: Private hospital pharmacies in South Africa	Far	High

C: Possible comparisons			
Individual	A: Operational pharmacists from private and public pharmacies in South Africa	vs.	B: Operational pharmacists from private corporate pharmacies in South Africa
	A: Operational pharmacists from private and public pharmacies in South Africa	vs.	C: Operational pharmacists from Private single owner pharmacies in South Africa
	A: Operational pharmacists registered with SAPC from private and public pharmacies in South Africa	vs.	D: Operational pharmacists from public hospital pharmacies in South Africa
	A: Operational pharmacists from private and public pharmacies in South Africa	vs.	E: Operational pharmacists from private hospital pharmacies in South Africa
	A: Operational pharmacists from private and public pharmacies in South Africa	vs.	F: Pharmacists from a variety of pharmaceutical sectors in South Africa.
Intermediary	G: Pharmacists (focus group and individual interview) working in a variety of pharmaceutical sectors in South Africa	vs.	F: Pharmacists (web-based questionnaire) working in a variety of pharmaceutical sectors in South Africa
Authority	H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa	vs.	I: Pharmacists with managerial responsibilities working in: Private corporate pharmacies in South Africa
	H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa.	vs.	J: Pharmacists with managerial responsibilities working in: Private single owner pharmacies in South Africa
	H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa.	vs.	K: Pharmacists with managerial responsibilities working in: Public hospital pharmacies in South Africa.
	H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa.	vs.	L: Pharmacists with managerial responsibilities working in: Private hospital pharmacies in South Africa.
	H: Pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa.	vs.	F: Pharmacists from variety of pharmaceutical sectors in South Africa
Cross-constituency	<i>None</i>		

The pharmacists were grouped into possible constituencies by the researcher according to the **distance** from the phenomenon. In other words, groups of pharmacists who are working most of their working day upfront with patients dispensing medicine and in interaction with patients (operational pharmacists) in comparison with other pharmacists who are in managerial positions (managerial pharmacist) who spend most of their time in a day managing the pharmacy, stock,

or personnel as well as other managerial tasks and spend between little and no time at all with patients and dispensing medicine (distance from the phenomenon is either close, average or far).

The pharmacists were again grouped into constituencies that have the **power** to or can do something about the phenomenon. In other words pharmacists presumably in managerial positions who have the authority and are able to influence and change the time allocation or responsibilities of the pharmacist and pharmacy to influence the phenomenon in comparison with a general pharmacist working in a pharmacy whose main responsibility is the dispensing of medicine to the patient (power to influence the phenomenon is either high, medium or low).

The constituencies were also grouped into constituencies that consisted of pharmacists that act mostly on an **individual** basis (operational pharmacists), constituencies with **authority** over the phenomenon (managerial pharmacists) and lastly **intermediary** constituencies in between individual constituencies or authority constituencies that consist of a mixture of pharmacists with either high or low power over the phenomena or who are close to or far from the phenomenon.

Pharmacists were also grouped in constituencies depending on their workplace such as private sector retail pharmacies owned by single independent owners or by corporate groups, pharmacists working in private hospitals or pharmacists working in public hospitals. It is important to note that only pharmacists registered with the South African Pharmacy Council (SAPC) at the time of the study were selected to participate in the study.

1.3 Comparisons of constituencies

The respondents were grouped in “constituencies” according to demographic data received from the web-based questionnaire. The respondents had to indicate for example whether they worked in the Public or Private health-care sector and whether they are in a managerial or operational position. Constituency F (Table 1.2 above) was used in the focus group and interview and consisted of pharmacists from various Pharmaceutical sectors in South Africa. The initial planning was to compare the System Influence Diagrams of different constituencies as can be seen in Table 1.2 (above), for example the Constituency F (focus group and interviews) with the Constituency G (web-based questionnaire) to determine what were the similarities of the pharmacists from different constituencies’ perception of their role in medication adherence. The data from the web-based questionnaire were supposed to be useful to compile the constituencies based on the demographic information supplied by the respondents and compare the constituencies. For example a comparison of the System Influence Diagrams (SID) of Constituency A (Operational pharmacists from private and public pharmacies in South Africa

versus Constituency H (pharmacists with mostly managerial responsibilities from private and public pharmacies in South Africa).

Unfortunately the response to the web-based questionnaire was very low as only 7.53% of the total population of 12822 pharmacists responded and only about 50% of those responses (495) were complete and useful for the study. The researcher decided to abandon any comparisons between constituencies and rather combine the results of the focus group and interviews and develop a single but robust combined Systems Influence Diagram of all the respondents of the focus group, personal interviews and the web-based questionnaire. The combined SID of this study could serve as a base against which the results of possible further studies could be compared.

1.4 Phenomenon

The phenomenon was developed by the researcher and the results can be seen in Table 1.3 below.

Table 1.3 Research Design Protocol for Pharmacists' perceptions of their role in medication adherence in South Africa: Phenomenon

D: Phenomenon		
Constituency	Phenomenon	
All of the constituencies listed in Table 4.2 will have the same phenomenon	The role of the pharmacists in medication adherence in South Africa	
Location of events		
Individual	Intermediary	Authority
Where does this take place? - Private and public pharmacies all the time when operational in South Africa - All working environments of pharmacists in South Africa	Where does this take place? - Private and public pharmacies all the time when operational in South Africa - All working environments of pharmacists in South Africa	Where does this take place? - Private and public pharmacies all the time when operational in South Africa - All working environments of pharmacists in South Africa
Range of Time		
Individual	Intermediary	Authority
When does it take place? Any day when operational during working hours	When does it take place? Any day when operational during working hours	When does it take place? Any day when operational during working hours
Constituency	Research questions	Issue statement
Constituency for focus groups and interviews consists of pharmacists from various	1. What are the components of the pharmacists' perceptual system	In your opinion, what is the role of the pharmacist regarding

Pharmaceutical sectors in South Africa. Constituencies will be formed with pharmacists respondents from the web-based questionnaire made available to all pharmacists in South Africa.	<i>regarding their role in medication adherence in a South African context?</i> 2. <i>How do these components relate to each other in a perceptual system?</i> 3. <i>How do the perceptual systems of pharmacists compare in different environments in South Africa?</i>	medication adherence in South Africa?

1.4.1 Constituency and phenomenon

The researcher has decided that the phenomenon will be the same for the different proposed constituencies: “The role of the pharmacist in medication adherence in South Africa”

1.4.2 Locations of events

The locations of the events for the constituencies were identified as the pharmacies and other workplaces where the pharmacists normally reside during their working hours.

1.4.3 Range of time

The range of time for the events in this study for the constituencies is the normal working hours of the pharmacists depending on their different specific workplaces

1.4.4 Research questions

The researcher decided to make use of a single phenomenon for the different constituencies. There were three research questions and they were similar for the different constituencies. The research questions are as follows:

- What are the components of the pharmacists’ perceptual system regarding their role in medication adherence in a South African context? (Discussed in Chapter 4)
- How do these components relate to each other in a perceptual system? (Discussed in Chapter 4)
- How do the perceptual systems of pharmacists compare in different environments in South Africa? (Research question could not be answered and was omitted)

1.5 Issue Statement

As there is only one phenomenon for the different constituencies and only a single set of research questions thus the only Issue Statement was as follows:

In your opinion, what is the role of the pharmacist regarding medication adherence in South Africa?

1.6 Final answer

The final answer that is the end product of the Research Design Protocol can be seen in Table 1.4 below.

Table 1.4 Research Design Protocol for Pharmacists' perceptions of their role in medication adherence in South Africa: Final answer

Final answer	
Problem:	Medicine non-adherence of patients
Constituency:	Pharmacists registered with the SAPC from as many Pharmaceutical sectors in South African as possible.
Comparisons:	Depending on responses from the web-based questionnaire, the perceptual system of all pharmacists registered with the SAPC from all the pharmaceutical sectors in South Africa to be compared with the perceptual system of Operational pharmacists from private and public pharmacies in South Africa.
Phenomenon:	The role of the pharmacist in the medication adherence of the patient in South Africa
Research questions:	3. What are the components of the pharmacists' perceptual system regarding their role in medication adherence in a South African context? 4. How do the above-mentioned components relate to each other in a perceptual system?
Issue statement:	In your opinion, what is the role of the pharmacist in medication adherence in South Africa?

In this section the Research Design Protocol was followed and the outcome thereof was presented

2 Phase 2 Focus Group

2.1 Focus group sessions: Introduction

The researcher explained the purpose of the study to the attendees and all the participants completed informed consent documents. A demographic questionnaire was completed by all the

attendees. The researcher explained the confidentiality of information regarding personal information. All information generated during the focus group will become the information of the group and thus public information. The focus group's views were recorded with the permission of the participants. The facilitator was introduced to the participants and the programme of the focus group was explained to the participants.

2.2 Focus group warm-up exercise

The researcher made use of the expertise of a qualified and experienced facilitator in facilitating the focus group. The researcher presented a presentation of medication adherence and a brief group discussion of medication adherence followed. The researcher facilitated the focus group warm-up exercise and the procedures presented in Chapter 4: Table 4.3 were followed.

2.2.1 Focus group: Identifying affinities

During the IQA focus group phase of the IQA research flow the elements of the perceptual system of the pharmacist regarding their role in medication adherence were constructed. Six affinities were constructed by the participants of the focus group as elements of the perceptual system and in the following six tables, each affinity will be presented together with the information of the sticky cards generated in the silent nominal brainstorming phase of the focus group.

No sub-affinities were developed by the focus group because of time constraints. The researcher developed sub-affinities as part of the axial interview transcript analysis as can be seen in Tables 2.1 to 2.6 below.

The information of the sticky cards for External Barriers as affinities can be seen in Table 2.1.

Table 2.1 External Barriers as affinity

External Barriers
• Medical aid benefits available
• Clients ask advice when they receive medication through the post
• Client perception, becoming unsure because the doctor also gave information
• Availability of medicine, especially in the public sector can improve patient adherence a lot
• To give more information than doctor or internet about medication
• Availability of medicine in hospitals
• Patient problems
• Patient factors
• Pharmacist has a huge role in patient adherence, but if their workload is too high it cannot be expected of them

• Time restraint a problem
• Enough time spent with patient

The information derived from the sticky cards of the second affinity namely Disposition can be seen in Table 2.2.

Table 2.2 Disposition as affinity

Disposition
• Emotional interest
• Interested
• Patience
• Empathy
• To be able to show empathy
• Empathetically
• Care
• Confidence
• Be POSITIVE
• Emotions
• Recommendation
• Even if time is limited, pharmacists explain patiently to patients how to use medication on RX as well as why it should be used
• Care-givers
• Pharmacist is a care-giver
• Sympathetic
• To take patient's work and family circumstances into consideration.
• Convince patient of your interest
• Friendly
• Positivity
• Patient's personality
• Commitment
• Pleasant
• Real sympathy
• Motivational
• Set patients at ease
• Friendly
• Patients and empathy
• Honesty x 2
• Compassion

Professionalism and the information of the sticky cards is the third affinity and can be seen in Table 2.3

Table 2.3 Professionalism as affinity

Professionalism
• Knowledge of pharmacist
• Provide stability in community with regard to medicine usage
• Totally trustworthy
• Informed pharmacist
• It is a process, not a once-off
• Maintain professional image that enforces respect
• Pharmacist must motivate patients to use medicine
• Of utmost importance
• It is difficult to ensure adherence if you did not see the patient e.g. in private hospitals
• Win a patient's trust through knowledge and professionalism
• Continually update your knowledge: CPD

The fourth affinity namely Communication Skills with information of the sticky cards can be seen in Table 2.4.

Table 2.4 Communication Skills as affinity

Communication Skills
• Listen
• Communication Skills (x2)
• Communication is NB
• Ask and listen
• We as pharmacists must accept that not everybody knows and understands our language or terms. Use simpler words in communication
• Counsellor

The Information Role and the related information can be seen in Table 2.5.

Table 2.5 Information Role as affinity

Information Role
• Explain what will happen if the medicine is not used correctly
• Medicine and illness interaction (porphyria, asthma)
• Medicine interactions

Information Role
• Name expected side-effects
• Side-effects
• Food interactions
• Provide extra information e.g. Interactions with other medications or food e.g. Milk
• Complete the course
• Usage only for indicated person
• Do patient training
• Precautionary measures
• Explain how to use medication correctly
• Indicate for which illness the medicine should be used
• Role of pharmacist – to HELP patients and clients with medicine usage
• Route of application
• Background
• Disadvantage of medicine explain to patients
• Method
• Information
• History of patient
• Timing with usage of medication
• Safety
• Be source of information for patient – give patient opportunity to ask questions
• Comprehensive information
• Problems to take medicine (patient) solve problems
• Difference between ACUTE (symptomatic) and chronic medication – confusion about usage
• Analytical
• Time intervals
• Storage (information of) - storage at home
• Information to care-giver
• Meticulous usage
• Explain why medication must be used in a specific way e.g. complete the course

The last and sixth affinity with information from the sticky cards can be seen in Table 2.6.

Table 2.6 Motivational Role as affinity

Motivational Role
• Apply complete record keeping
• To give patient enough information so that he/she realize the importance of adherence.
• Motivate patients to use medication

• To implement systems to monitor e.g. chronic lists and to phone patients to remind them to come and fetch their medicine
• Check if patient correctly understands how to use the medicine.
• Keep it simple
• Reason
• To make patients aware of the disadvantages of using too much medicine (unnecessary medicine)
• Evaluate usage
• Interested in outcome of illness
• To set patients at ease regarding action of medicine
• Explain implications of correct or incorrect usage

3 Development of the Systems Influence Diagram of Pharmacist's perceptions of their role in medication adherence

The results of the individual interviews are the completion of the Individual Interview Affinity Relationship Table (ART). The result of Participant 1 is presented in Table 3.1 below as an example of an individual process. The purpose of the Individual Interview ART was to indicate the relationship between Affinity pairs. The results of the other participants are in the possession of the researcher.

The information of all the individual ARTs of the 14 participants of the individual interviews as well as the information of the ARTs of the web-based questionnaires were tallied and the product was the Combined Theoretical Code Frequency Tables as can be seen in Table 3.2 below.

The affinities were initially randomly ordered and numbered during the focus group activities as well as the semi-structured interview and web-based activities

Table 3.1 Example of an Individual Interview Affinity Relationship Table (ART)

Affinity name 1. Professionalism 2. External Barriers 3. Motivational Role 4. Communication Skills 5. Information Role 6. Disposition	Possible relationships $A \rightarrow B$ $A \leftarrow B$ $A \nleftrightarrow B$ (No Relationship)

Interview Affinity Relationship Table Participant 1	
Affinity Pair Relationship	
1 $\leftarrow$ 2	1 $\rightarrow$ 3
1 $\rightarrow$ 4	1 $\rightarrow$ 5
1 $\leftarrow$ 6	2 $\rightarrow$ 3
2 $\rightarrow$ 3	2 $\leftarrow$ 4
2 $\leftarrow$ 5	2 $\rightarrow$ 6
3 $\leftarrow$ 4	3 $\rightarrow$ 5
3 $\rightarrow$ 5	3 $\leftarrow$ 6
4 $\rightarrow$ 5	4 $\leftarrow$ 6
4 $\leftarrow$ 6	5 $\leftarrow$ 6

The Combined Theoretical Code Frequency of the affinity pairs of the Individual Interviews and the Web-based questionnaire can be seen in Table 3.2

Table 3.2 Combined Theoretical Code Frequency Table with total frequencies

Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency		Affinity Pair Relationship	Frequency
1 > 2	132		2 > 3	290		3 > 5	176
1 < 2	261		2 < 3	116		3 < 5	273
1 > 3	378		2 > 4	202		3 > 6	105
1 < 3	107		2 < 4	155		3 < 6	360
1 > 4	173		2 > 5	242		4 > 5	350
1 < 4	274		2 < 5	116		4 < 5	109
1 > 5	256		2 > 6	244		4 > 6	120
1 < 5	200		2 < 6	128		4 < 6	303
1 > 6	209		3 > 4	108		5 > 6	103
1 < 6	257		3 < 4	339		5 < 6	334
2247			1940			2233	
Total Frequency							6420

The Theoretical Code Frequency Table of the Individual Interviews as well as the Web-based Questionnaire is shown below in Table 3.3

Table 3.3 Theoretical Code Frequency Table of the Individual Interviews and web-based Questionnaire

Affinity Pair Relationship	Interviews Frequency		Questionnaire Frequency	Total Frequency
1 > 2	2		130	132
1 < 2	10		251	261
1 > 3	14		364	378
1 < 3	0		107	107
1 > 4	6		167	173
1 < 4	7		267	274
1 > 5	9		247	256
1 < 5	3		197	200
1 > 6	3		206	209
1 < 6	9		248	257
2 > 3	11		279	290
2 < 3	2		114	116
2 > 4	6		196	202
2 < 4	5		150	155
2 > 5	8		234	242
2 < 5	4		112	116
2 > 6	10		234	244
2 < 6	4		124	128
3 > 4	2		106	108
3 < 4	8		331	339
3 > 5	3		173	176
3 < 5	11		262	273
3 > 6	3		102	105
3 < 6	10		350	360
4 > 5	12		338	350
4 < 5	0		109	109
4 > 6	0		120	120
4 < 6	9		294	303
5 > 6	1		102	103
5 < 6	13		321	334

In the following section the Pareto Protocol Analysis of the system of the interviews and web-based questionnaire will be discussed.

4 Pareto Protocol Analysis of the combined system

A more detailed description of the Pareto Protocol Analysis can be found in Annexure E as well as in Northcutt and McCoy (2016d). The Pareto Principle states in terms of systems that plus minus 20% of the variables in a system will account for plus minus 80% of the total variation in

the outcomes. The essential application of the Pareto Principle is that a minority of the relationships (causes) in any system will account for the majority of the variation (effects) in the system. The IQA methodology uses the Pareto principle in operation to achieve consensus where there is disagreement among the respondents of the interviews and the web-based questionnaire about the nature of the given relationship (direction thereof) and to create a group composite (Northcutt & McCoy, 2016d). The exact count of the each relationship code was used from the Combined Theoretical Code Frequency Table (Table 3.2 and 3.3) The Pareto Protocol Analysis consists of seven steps. Step one follows in the following section.

4.1 Step 1 of Pareto Protocol: Building the Pareto Table

The first step in the Pareto Protocol was to build the Pareto Table (Northcutt & McCoy, 2016d). The theoretical codes were transferred from the Combined Theoretical Code Frequency Table (Table 3.2) to the Pareto Protocol Template (Table 4.1 below) and organised according to the Pareto Protocol (Northcutt & McCoy, 2016d). A total of 30 possible relationship exist by means of 30 permutations of the six affinities when taken as pairs. A total of 6420 votes were cast for the 30 possible relationships. The frequencies of the affinity pair relationships were ordered as can be seen in Table 4.1 and the relationships were sorted in descending order of frequency (column B in Table 4.1) and expressed as a cumulative frequency as in column C. The cumulative frequencies were then expressed both as a percentage (column E) of the 6240 votes and the cumulative frequencies were also expressed in column D based on the number of possible relationships (30). Each relationship represents 1/30 or approximately 3.3% of the possible number. The last column (F) of Table 4.1 is the Power column that is an index of the degree of optimization of the system and is the difference between Cumulative per cent (Frequency) and Cumulative per cent (Relation) (Northcutt & McCoy, 2004:160).

The cumulative frequencies are usually used for two purposes. Firstly the optimal number of relationships that the composite system need to consist of. For the sake of brevity or parsimony, the fewest number of relationships that presents the greatest amount of variation for the sake of comprehensiveness and richness need to be used. Secondly the purpose is to resolve ambiguous relationships which attracted votes in both directions. No ambiguous relationships were found in this study (equal direction of the relationship between two pairs).

Table 4.1 Pareto Protocol: Frequency ordered

Affinity Pair Relationship	Frequency Sorted (Descending)	Cumulative Frequency	Cumulative Per cent (Relation)	Cumulative Per cent (Frequency)	Power	Cut-off points
Column A	Column B	Column C	Column D	Column E	Column F	
1 > 3	378	378	3,3	5,9	2,6	
3 < 6	360	738	6,7	11,5	4,8	
4 > 5	350	1088	10,0	16,9	6,9	
3 < 4	339	1427	13,3	22,2	8,9	
5 < 6	334	1761	16,7	27,4	10,8	
4 < 6	303	2064	20,0	32,1	12,1	
2 > 3	290	2354	23,3	36,7	13,3	
1 < 4	274	2628	26,7	40,9	14,3	
3 < 5	273	2901	30,0	45,2	15,2	
1 < 2	261	3162	33,3	49,3	15,9	
1 < 6	257	3419	36,7	53,3	16,6	
1 > 5	256	3675	40,0	57,2	17,2	
2 > 6	244	3919	43,3	61,0	17,7	
2 > 5	242	4161	46,7	64,8	18,1	
1 > 6	209	4370	50,0	68,1	18,1	Peak Power
2 > 4	202	4572	53,3	71,2	17,9	
1 < 5	200	4772	56,7	74,3	17,7	
3 > 5	176	4948	60,0	77,1	17,1	
1 > 4	173	5121	63,3	79,8	16,4	
2 < 4	155	5276	66,7	82,2	15,5	80%
1 > 2	132	5408	70,0	84,2	14,2	
2 < 6	128	5536	73,3	86,2	12,9	86%
4 > 6	120	5656	76,7	88,1	11,4	
2 < 3	116	5772	80,0	89,9	9,9	
2 < 5	116	5888	83,3	91,7	8,4	92%
4 < 5	109	5997	86,7	93,4	6,7	
3 > 4	108	6105	90,0	95,1	5,1	96%
1 < 3	107	6212	93,3	96,8	3,4	Row 28
3 > 6	105	6317	96,7	98,4	1,7	
5 > 6	103	6420	100,0	100,0	0,0	100%
Total Frequency	6420	Equal Total Frequency	Equals 100%	Equals 100%	Power = E-D	

In the following section the second step of the Pareto Protocol will be presented.

4.2 Step two of the Pareto Protocol: Find an optimal cut-off point

The second step was to find the optimal cut-off point. A cut-off point was chosen that answers to the following prerequisites:

- above the maximum or peak power of 18.1 (marked in red in Table 4.1 above),

- above 80% Cumulative Per cent Frequency point is chosen that is based on the Min/Max criterion (Northcutt & McCoy, 2004:158, 280)(marked in yellow in Table 4.1 above).
- at least one of each of the affinity pairs was incorporated; and
- all the frequencies of the same value were included.

The possible cut-off points were marked by highlighting the appropriate row as can be seen in Table 5.4 above.

4.2.1 The Min/Max criterion

The last two columns of the Pareto table (Table 4.1 above) are the keys to decide which relationships should be included in the system (Northcutt & McCoy, 2016d) thus suggesting which relationships to exclude from the Combined Interrelationship Diagram (IRD) (Tables 4.4 and 4.5 below). The decision of the cut-off point involves the optimisation of a trade-off between the following two criteria: The composite should account for maximum variation in the system (cumulative per cent based on frequency) as well as the minimizing of the number of relationships in the interest of parsimony (cumulative per cent based on relations).

4.2.2 Accounting for Maximum variance: Frequency

According to Figure 4.1 and Table 4.1 accounts for ten of the possible 30 (33.3%) relationships for 49.3% of the variation in the system and 50% of the relationships accounts for 68.1% of the variance that is acceptable although not close to the theoretical Pareto principle where 20% of the relationships are responsible for 80% of the variance.

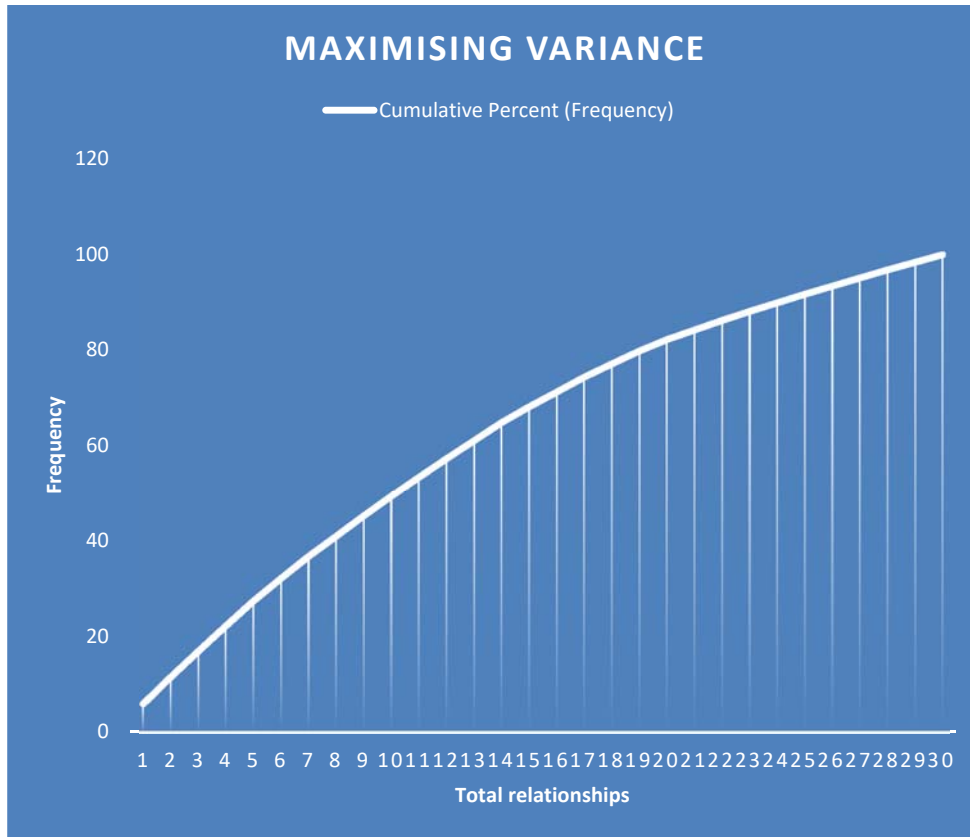


Figure 4.1 Variance accounted for each succeeding relationship

4.2.2.1 Accounting for minimizing the number of affinities: Power

According to Table 4.1 and Figure 4.2 reached Power a maximum at 15 relationships, which accounts for 68.1% of the variation in this system. Therefore, 15 relationships would have been a defensible choice for inclusion in the Composite IRD sine it is the optimal number regarding the Min/Max criterion.

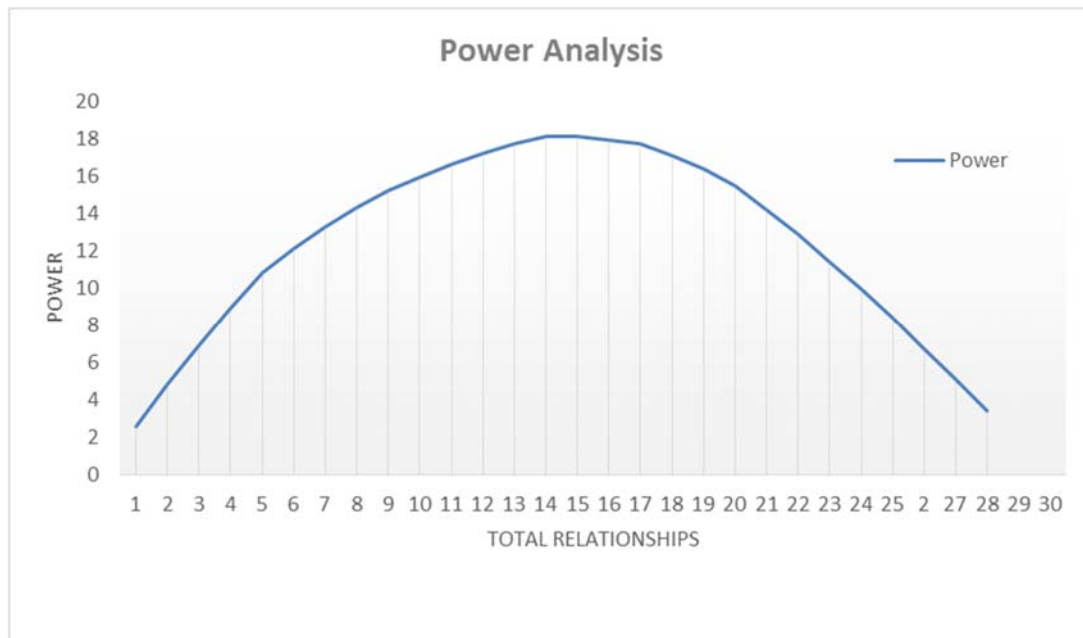


Fig 4.2 Power analysis of the system

A Stacked Line Chart was completed by using the Cumulative Percentage Frequency and Power as can be seen in Figure 4.3 (Northcutt & McCoy, 2016d). The power arc was examined for the peak of the curve and it was found that no distinctive peak could be identified but Row 28 was identified as the approximate arc. Row 28 in Table 4.1 had a frequency of 107 and the researcher ensured that all frequencies of 107 or greater were included in the SID (Northcutt & McCoy, 2016d).

Stack Line Chart for Cumulative Per cent Frequency and Power are presented below in Figure 4.3.

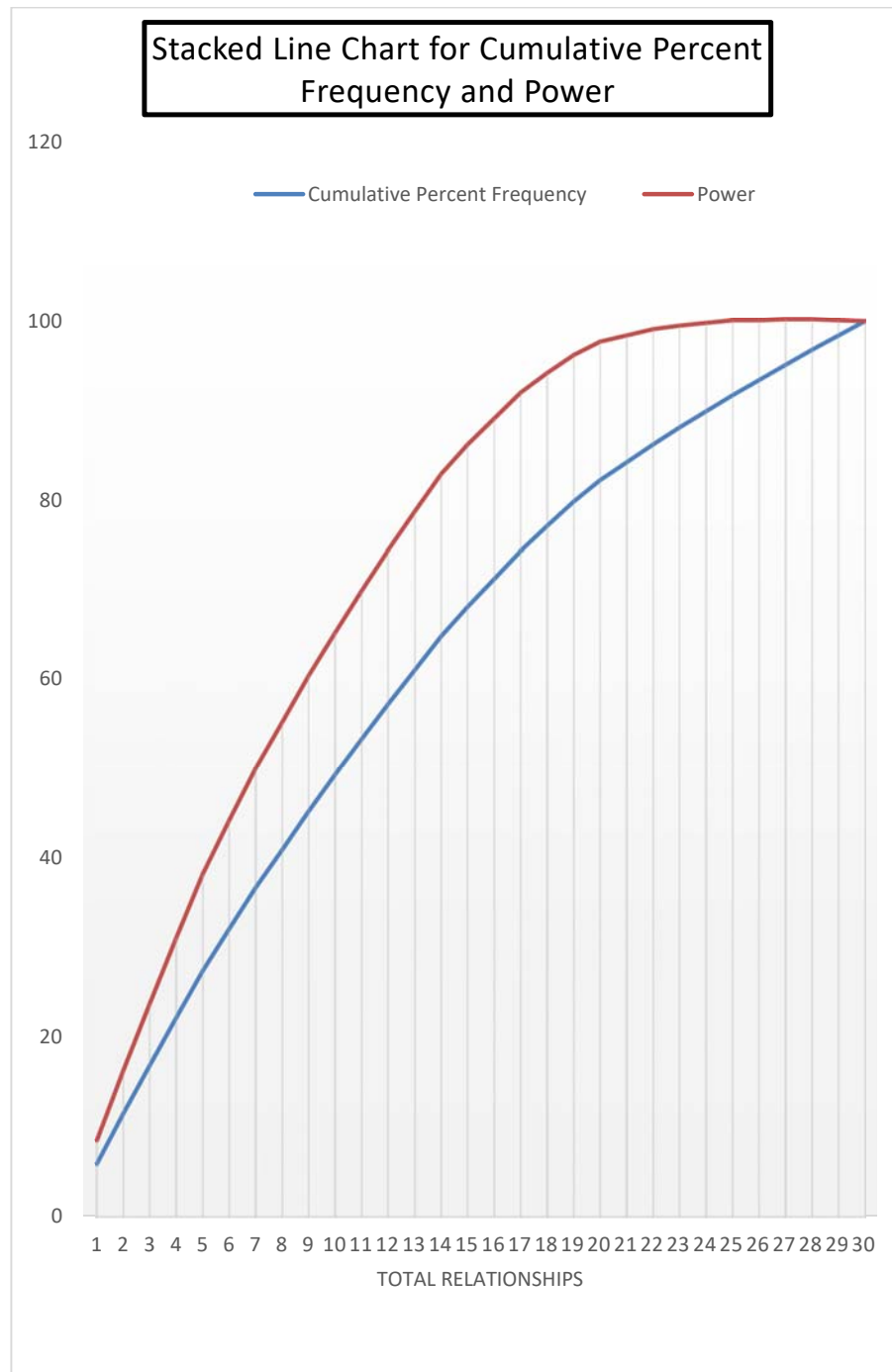


Figure 4.3 Stack Line Chart for Cumulative Per cent Frequency and Power

Varying frequencies closest to 85%, 90%, 95% and 100% were also marked in Table 4.1 for possible use. The researcher built systems and decided to use the 100% varying frequency presents the research the best system and was used for this research (Northcutt & McCoy, 2016d).

4.3 Third step of Pareto Protocol: Conflict management

The third step in the Pareto Protocol was the management of the conflicting relationships for reconciliation of the Systems Influence Diagram. The Pareto protocol template as provided by Northcutt and McCoy (2016d) was used.

Table 4.2 Pareto Protocol: Conflict management sheet

Affinity Pair Relationship	Frequency	Cut-off %	Affinity Pair Relationship	Frequency (Descending)
1 > 2	132	6	1 > 3	378
1 < 2	261	11	3 < 6	360
1 > 3	378	17	4 > 5	350
1 < 3	107	22	3 < 4	339
1 > 4	173	27	5 < 6	334
1 < 4	274	32	4 < 6	303
1 > 5	256	37	2 > 3	290
1 < 5	200	41	1 < 4	274
1 > 6	209	45	3 < 5	273
1 < 6	257	49	1 < 2	261
2 > 3	290	53	1 < 6	257
2 < 3	116	57	1 > 5	256
2 > 4	202	61	2 > 6	244
2 < 4	155	65	2 > 5	242
2 > 5	242	68	1 > 6	209
2 < 5	116	71	2 > 4	202
2 > 6	244	74	1 < 5	200
2 < 6	128	77	3 > 5	176
3 > 4	108	80	1 > 4	173
3 < 4	339	82	2 < 4	155
3 > 5	176	84	1 > 2	132
3 < 5	273	86	2 < 6	128
3 > 6	105	88	4 > 6	120
3 < 6	360	90	2 < 3	116
4 > 5	350	92	2 < 5	116
4 < 5	109	93	4 < 5	109
4 > 6	120	95	3 > 4	108
4 < 6	303	97	1 < 3	107
5 > 6	103	98	3 > 6	105
5 < 6	334	100	5 > 6	103

The affinity pairs in white (highest frequency of the pair) were used to build the uncluttered SID. The affinity pairs highlighted in orange (lesser frequency of the pair) were the conflicts and were used to reconcile the final system according to the protocol as described in the unpublished manuscript provided to the researcher by Northcutt and McCoy (2016d).

4.4 Step 4 of Pareto Protocol: Build a Composite Interview IRD

The SID assigned Protocol was followed by using all the non-highlighted (highest frequencies) relationships from the Conflict Sheet (Table 4.2 above) to build the Composite Tentative SID Assignments according to Northcutt and McCoy (2016d).

The SID Assignment Protocol consists of four tables and can be followed from Table 4.3 to Table 4.6 as the end result.

Table 4.3 SID Assignments Protocol Combined Interview and Web-based Questionnaire

Affinity Name	Possible Relationships
1. Professionalism	$A \rightarrow B$
2. External Barriers	$A \leftarrow B$
3. Motivational Role	$A \times B$ (No Relationship)
4. Communication Skills	
5. Information Role	
6. Disposition	

Affinity Relationship Table (ART) Combined				
Affinity Pair Relationship				Affinity Pair Relationship
1	$\leftarrow$	2		3 $\leftarrow$ 4
1	$\rightarrow$	3		3 $\leftarrow$ 5
1	$\leftarrow$	4		3 $\leftarrow$ 6
1	$\rightarrow$	5		4 $\rightarrow$ 5
1	$\leftarrow$	6		4 $\leftarrow$ 6
2	$\rightarrow$	3		5 $\leftarrow$ 6
2	$\rightarrow$	4		
2	$\rightarrow$	5		
2	$\rightarrow$	6		

The next step in the protocol is the development of the Combined Interrelationship Diagram (IRD)

Table 4.4 Combined Interrelationship Diagram

Combined Interrelationship Diagram IRD									
	1	2	3	4	5	6	OUT	IN	Δ
1		←	↑	←	↑	←	2	3	-1
2	↑		↑	↑	↑	↑	5	0	5
3	←	←		←	←	←	0	5	-5
4	↑	←	↑		↑	←	3	2	1
5	←	←	↑	←		←	1	4	-3
6	↑	←	↑	↑	↑		4	1	3
Total							15	15	0

The information obtained from Table 4.5 was used to develop the Sorted Combined IRD Table as can be seen below.

Table 4.5 Sorted Combined IRD Table

IRD – Sorted in Descending Order of Δ									
	1	2	3	4	5	6	OUT	IN	Δ
2	↑		↑	↑	↑	↑	5	0	5
6	↑	←	↑	↑	↑		4	1	3
4	↑	←	↑		↑	←	3	2	1
1		←	↑	←	↑	←	2	3	-1
5	←	←	↑	←		←	1	4	-3
3	←	←		←	←	←	0	5	-5

The outcome of the SID assignments Protocol was the tentative SID Assignment to be used in the SID

Table 4.6 Tentative SID Assignments

Tentative SID Assignments	
2	Primary Driver
6	Secondary Driver
4	Secondary Driver
1	Secondary Outcome
5	Secondary Outcome
3	Primary Outcome

The Tentative SID assignments indicated where the various affinities need to be placed in the Systems Influence diagram. Primary Drivers are placed on the left of the diagram with secondary drivers towards the right. Primary outcomes are placed on the right hand side of the diagram with secondary outcomes toward the left (Chapter 5.4.1, and Northcutt & McCoy, 2016a).

Step five of the Pareto Protocol follows below.

4.5 Step five of Pareto Protocol: Building the SID of Pharmacist’s perception of their role in Medication adherence

The standard protocol (Northcutt & McCoy, 2016a, Annexure A) was followed and the SID assignments of Table 4.6 were used for building the Cluttered SID (Figure 4.7) and the Uncluttered SID (Figure 4.8).

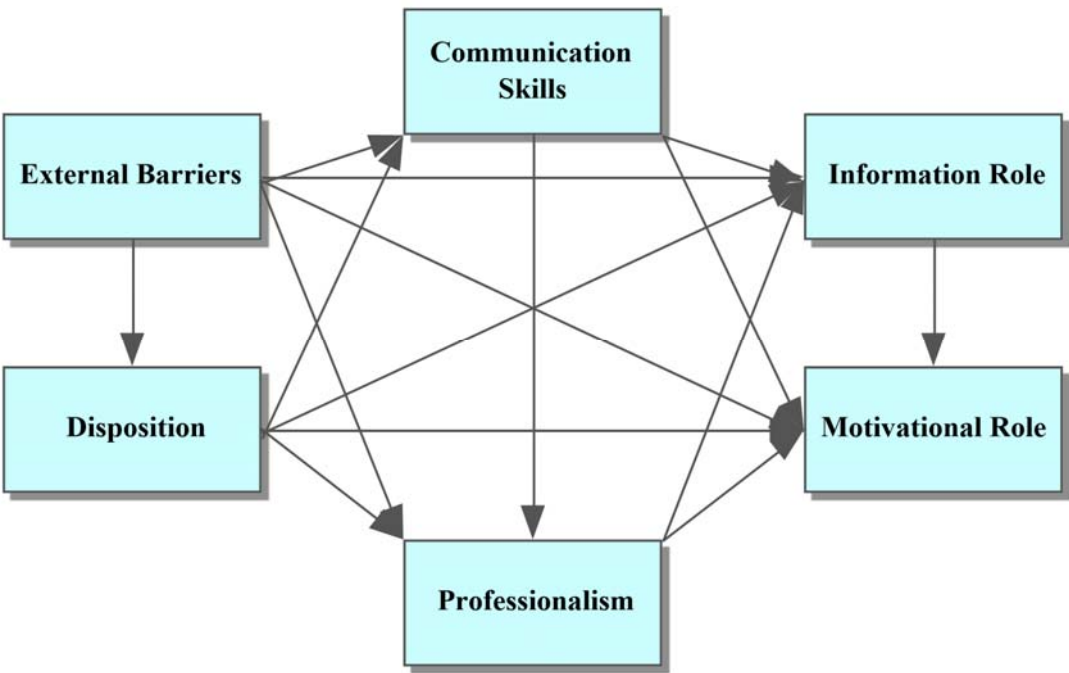


Figure 4.7 Cluttered SID of Pharmacists’ perception of their role in Medication adherence

The Cluttered Systems Influence Diagram (SID) contains all the relationships as described by the interviewees and the web-based questionnaire and is saturated with all the relationships as can be seen in Figure 4.7 (above) (Northcutt & McCoy, 2004:329). Because of the level of saturation,

the Cluttered SID is comprehensive and rich but can be very difficult to interpret. There are so many links and relationships that the system becomes nearly impossible to explain. Although comprehensiveness and richness are sought in the SID there is also a quest for caution.

The Uncluttered SID is the answer because all the redundant links are removed according to the protocol. The affinities are arranged to illustrate the system of the pharmacists' perception of their role in medication adherence.

The Uncluttered SID can be seen in Figure 4.8

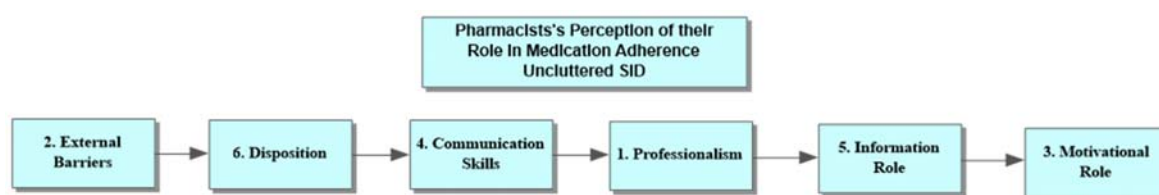


Figure 4.8 Uncluttered SID of Pharmacists' Perceptions of their Role in Medication Adherence

In the following section the reconciliation of the conflicts of the SID was done. Pareto Protocol principles are applied to the cluttered SID to examine and solve conflicting relationships between affinities.

4.6 Step 6 of Pareto protocol: The Pharmacists' Perception of their Role in Medication adherence: Pareto Reconciled System Influence Diagram (SID)

The researcher added back into the system all the conflicts identified through the Pareto Protocol (Northcutt & McCoy, 2015:8, 2016a, 2016d). The uncluttered SID was examined for conflicting relationships (Northcutt & McCoy, 2004:331) as conflicting relationships occur when the same affinity pair has a significant number of relationships occurring in both directions. Only the relationships with the highest frequency are displayed in the uncluttered SID. The conflicting relationship not accounted for in the SID might have a significant impact on the system and is now added back (reconciled) into the system by means of the Pareto Protocol (Northcutt & McCoy, 2016d).

The Conflict 95% Affinity Relationship Tables as well as the Conflict 100% was constructed from the Conflict Management Sheet (Table 4.2) and the information used to add the conflicts back into the Cluttered System (Figure 4.7). The protocol to reconcile the SID to the conflicts was followed and a 100% conflict reconciled SID as well as a 95% conflict reconciled SID was built.

Both were investigated for best representation of the system and it was decided that the 95% conflict-reconciled SID was a better representation of the System Pharmacists' perception of their role in medication adherence.

The Conflict 95% ART can be seen in Table 4.7 below

Table 4.7 Conflict 95% Affinity Relationship Table

Affinity Relationship Table Conflict 95%					
Affinity Pair Relationship				Affinity Pair Relationship	
1	→	2		3	→ 4
1		3		3	→ 5
1	→	4		3	→ 6
1	←	5		4	← 5
1	→	6		4	→ 6
2	←	3		5	→ 6
2	←	4			
2	←	5			
2	←	6			

For the conflict 95% ART was the relationship of three affinity pairs not used in the reconciliation process.

Figure 4.9 gives a visual representation of the first step where the conflicting relationships (in orange) were added back into the Cluttered SID.

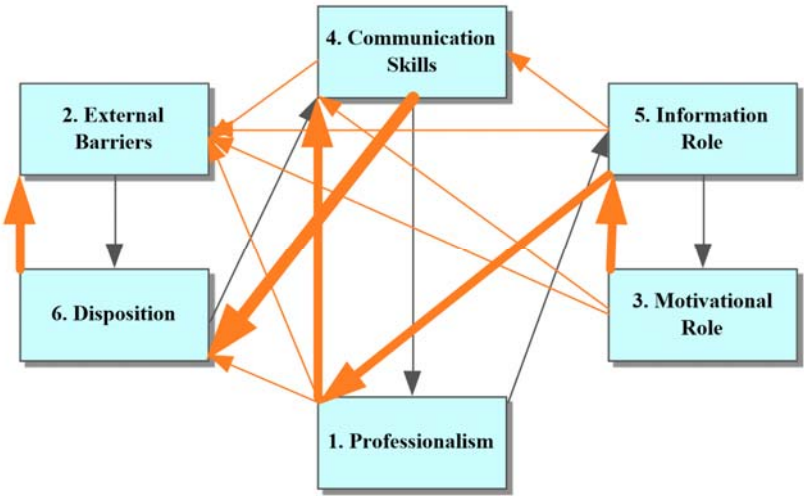


Figure 4.9 Conflicting 95% relationships of Pharmacists' Perceptions of their role in Medication Adherence

The backwards arrow removal process was conducted (Northcutt & McCoy, 2016d) and only two reconciled arrows in orange remained after the rebuilding of the Reconciled SID as can be seen in Figure 4.10 below.

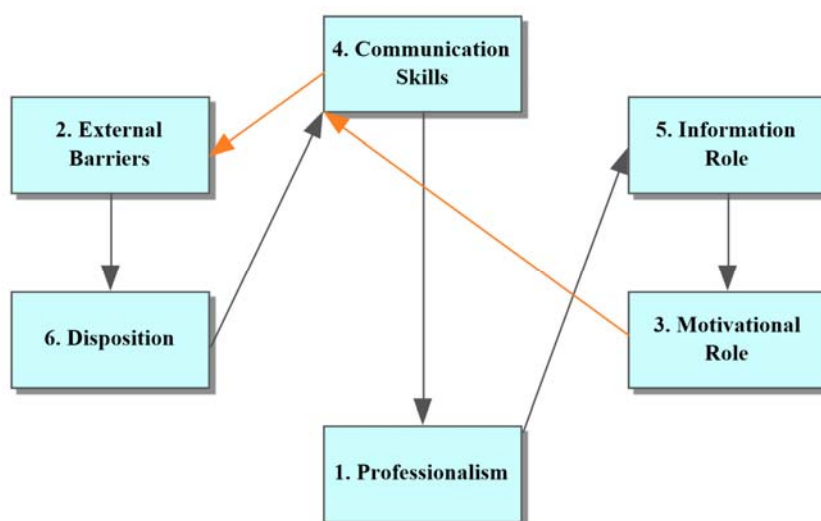


Figure 4.10: Final uncluttered reconciled SID of Pharmacists' Perceptions of their Role in Medication adherence

In the last section the 7th step of the Pareto Protocol where the Reconciled SID was rebuilt can be seen next.

4.7 Step 7 of Pareto protocol: Building the Reconciled SID: The Pharmacists' Perceptions of their Role in Medication adherence

The final system was completed by the rearrangement of the system elements according to the guidelines for maximum communication where no lines between affinities crossed (Northcutt & McCoy, 2016a). The final SID of Pharmacists' perceptions of their Role in Medication adherence can be seen in Figure 4.11 and is discussed in Chapter 5.

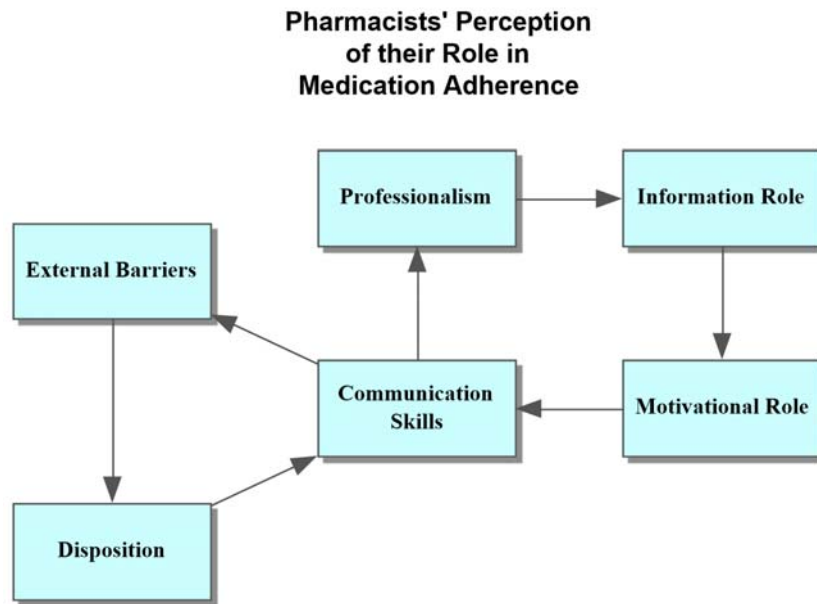


Figure 4.11: Final SID of Pharmacists' Perceptions of their role in Medication adherence

ANNEXURE D: ARTICLE

Pharmacists' perceptual systems regarding their roles in medication adherence in South Africa: An IQA approach

Abstract

Objectives

This study investigated the perceptions of pharmacists of their role in the medication adherence of patients in South Africa.

Methods

The Interactive Qualitative Analysis (IQA) method was used. IQA data were collected through three processes: A focus group (13 pharmacists), semi-structured individual interviews (14 pharmacists) and a web-based questionnaire (473 respondents). All pharmacists were registered with the South African Pharmacy Council.

Theoretical data of the web-based questionnaire and individual interviews were combined in a single set of data and used to build a perceptual system consisting of the affinities or elements and the relationships among them.

Key findings

Six affinities were identified: External Barriers, Disposition, Communication Skills, Professionalism, Information Role and Motivational Role.

External Barriers were identified as the primary driver of the system with Communication Skills in the modulator role. The Motivational Role was the primary outcome of the system presenting as the primary role of the pharmacists. Pharmacists experience some External Barriers very negatively as they have limited power or authority over it. Communication Skills were considered as very important within the context of medication adherence.

Conclusion

The respondents perceived that they as pharmacists had a role to play in the medication adherence of their patients and willingly accepted the role, as they really care for their patients and do want to help the patient to the best of their abilities.

This study provided new and previously unknown information in the format of a system and model to the benefit to all pharmacists in South Africa.

Key words

Perceptions, pharmacists, medication adherence, roles, IQA

Introduction

The World Health Organization (WHO) referred to non-adherence as a 'worldwide problem of striking magnitude'. Improving adherence to medication has become a priority to health care researchers and policy-makers ¹. Adherence and non-adherence to medication have been studied extensively in the past decade ². Researchers have been searching for the factor(s) that might regulate medication adherence.

As early as 2002, the multifaceted character of the phenomenon adherence was acknowledged with as many as 200 factors being hypothesised to influence adherence ³. Other research suggests that 30% to 50% of patients do not take their medicine for chronic conditions as prescribed ⁴ - for example, only 34% of the patients on chronic antidepressant medication in the private health-care environment in South Africa adhered to their treatment regimens ⁵.

Also, patients over-estimated their perceived level of medication adherence and patients whose actual levels of adherence are less than 25%, reported adherence levels higher than 90% ⁶.

The costs of non-adherence among patients have proved to be a missed opportunity for treatment gain and, if their conditions were to worsen, a possible decline could manifest in their quality of life, resulting in personal and economic costs to patients, health-care systems and societies ^{7,8}.

The interactions between the patient and the pharmacist as provider play a role in adherence ⁴. Although the pharmacist is not allowed to prescribe the medicine, all other factors are linked to the relationship between pharmacist and patient. Determinants of adherence relating to the pharmacist as provider are communication, relationship with the patient and racial concordance ⁹. For an effective relationship to exist between pharmacist and patient, it is essential to engage patients in shared decision-making regarding medicine needs and the expected efficacy thereof. Communication is central to the effectiveness of this relationship and evidence exists that poor communication results in a 19% higher risk of non-adherence.

Non-adherence is not a patient-only problem as it represents a fundamental limitation in the delivery of health-care. Addressing non-adherence does not mean getting patients to take more medicines *per se*, but rather to start with an exploration of the patient's perspectives on medicines and reasons why they may not want to or are unable to use the medicines ⁷. Adherence, according to the definition of the WHO ¹, is 'the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health-care provider' ^{10,11,4}. Most of the various definitions that are proposed are derivations from the original definition of Sackett and Haynes: "Compliance is the extent to which the patient's behaviour (in terms of taking medicines, following diets or executing other life style

changes) coincides with the clinical prescription”¹². Compliance is then defined as ‘the extent to which the patient’s behaviour matches the prescriber’s recommendations’^{4, 13} and implies a lack of patient involvement in the recommendations of the prescriber.

The major purpose of this exploratory study was to understand the perceptions of pharmacists in South Africa regarding their role in the medication adherence of a patient. The pharmacist is usually responsible for dispensing the prescribed medicine to the patient. The South African pharmacist is also partly responsible for the medicine therapy outcomes of pharmaceutical care, according to the Good Pharmacy Practice Document of the South African Pharmacy Council¹⁴. The pharmacist should see him/herself as playing an important role in the medication adherence of his patient. This study tended to explore how pharmacists perceive their roles and associated elements in the medication adherence of their patients and how they experience it. The analysis of the elements allowed the researcher to understand the elements as well as the interaction between the elements that formed the phenomenon called “The role of the pharmacist in the medication adherence of the patient in South Africa”.

Method

The IQA process used in this study combined focus groups, in-depth semi-structured interviews and a web-based electronic questionnaire to describe the perceptual system of pharmacists regarding their role in medication adherence. For each and every process as mentioned above, the specific protocol as well as documentation developed by Northcutt and McCoy (2004) was used by the researcher. “IQA as a qualitative methodology is grounded in systems theory whose primary purpose is to present the meaning of a phenomenon in terms of elements (affinities) and the relationships among them”¹⁵.

IQA data-collection techniques (focus-groups and interviews) assist the members of a group who are close (distance) to a phenomenon of interest in describing and labelling their experience. The outcome of the data collection is a collective (composite) conceptual map (picture of a system) of the participants and is a systemic representation of how a person or a group understands the particular problem. The system consists of affinities or categories of meaning and the perceived perceptual relationships among the affinities¹⁵. The IQA focus group is used to identify the affinities, each of which is well documented as part of the focus group protocol. Interviews then expand on the descriptions of the affinities. Affinities are similar to the quantitative concept of variables (elements)¹⁵.

The concept of Rigour as it is used in IQA refers to specific procedures for both data collection and analysis¹⁵ and the purpose of the IQA is to draw a picture of the system by means of the

System Influences Diagram (SID) that is a representation of the perceptual terrain or the mind map of a group with respect to a phenomenon. Theoretical coding is aimed at establishing the perceived cause and effect relationship (influences) among all the affinities in a system.

Participants analysed the nature of the relationships among the affinities according to the guidelines as outlined by Northcutt and McCoy ¹⁵ and the resultant outcome is that for any two affinities A and B, either

$A \rightarrow B$ (A influences B)

$A \leftarrow B$ (B influences A)

$A \leftrightarrow B$ (no relationship)

The following is reported:

- Phase 1: The IQA research design provides a series of tools to assist the researcher in articulating the problems of interest to be investigated, the identification of constituencies (participants) who have an interest in the problem and to propose research questions from the problem statement.
- Phase 2: The IQA focus group is used to identify the elements or affinities of the system that will represent the group's experience with the phenomenon. The final result of the focus group phase was to identify affinities and produce the Issue Statement, to be used in the IQA Interview Protocol.
- Phase 3.1: The IQA interviews further explore the meanings of the affinities as well as their relationships in the system. The IQA interview protocol firstly consists of an open-end axial interview designed to provide rich descriptions of affinities by the interviewee and where the participants were asked to "tell me about your experience of the affinity". Secondly the structured theoretical interview was designed to identify relationships between affinities and the interviewee is asked to determine the nature of the relationship among all possible pairs of affinities.
- Phase 3.2: The researcher developed a web-based questionnaire to determine the perceptions regarding the relationships between the affinities of the pharmacists of South Africa.
- Phase 4: The report and final phase allow the researcher to describe the affinities and their relationships in the words of the respondents and to make predictions or inference based on the properties of the system.

The typical IQA report for this study's purpose accomplishes two goals:

- Naming and describing the elements of the system; and

- Explaining relationships among elements of a system ¹⁶.

The researcher used the Atlas.ti™ Version 7 computer software programme to produce a Combined Interview Theoretical Code Document (TCD) from all the Individual Interview Theoretical Documents as well as the theoretical data from the web-based questionnaire.

The results of the relationships of the theoretical interviews as well as the web-based questionnaire, were tallied in the Combined Theoretical Code Frequency.

The Systems Influence Diagram Assignment Protocol was followed to allow the researcher to identify the relationships, and to determine the basic flow of the system from Driver to Outcome ¹⁶. The Cluttered SID that is saturated with links between affinities and is comprehensive and rich but difficult to interpret is built first ¹⁶. The next result is the Uncluttered SID where all the redundant links were removed and it represents the simplest possible representation.

The Pareto Protocol is applied to the system and the end result is the Uncluttered Reconciled SID where all the ambiguous relationships were resolved and the optimal number of relationships for the SID determined. The Pareto Principle stipulates that a minority of the relationships in any system will account for a majority of the variation within the system ¹⁶. As only one relationship could be used in the Affinity Relationship Table (ART), the relationship with the highest frequency is used in the SID Assignments Protocol. The other relationship might have a significant impact on the system and is reconciled according to the Pareto Protocol ¹⁵.

An ethical application has been submitted to the Research Ethics Committee of the Faculty of Health Sciences of the Potchefstroom Campus of the North-West University. The study was approved on 12 March 2013 with the following number: **NWU-00057-12-R5**

The respondents were also informed that all the information collected from this study would be collected anonymously, kept at and stored in a safe place at the North-West University and kept strictly confidential.

Results

All participants and respondents of this investigation were registered pharmacists with the South African Pharmacy Council. Table 1 provides an outline of the profiles of the participants.

Table 1 Description of participants of the study

IQA data-collection method	N (Pharmacists)	N (Pharmacists
IQA Focus group	50	13
IQA Individual Interview	50	14
Web-based Questionnaire	12822	473 (3.69%)

Six affinities (elements) were conceptualised by the IQA focus group. See Table 2 with a summary of the affinities.

Table 2 Affinity names and descriptions

Name	Descriptions
External Barriers	Factors beyond your control that determine your practice as a pharmacist.
Disposition	The pharmacist's attitude within his relationship with his patients.
Professionalism	More than professional appearance and behaviour. A way of being.
Communication Skills	Set of skills needed by the pharmacist so that all the patients understand him/her.
Information Role	Functional knowledge that the pharmacist shares with the patients.
Motivational Role	All your actions taken in order to motivate the patient to adhere.

The IQA individual interviews were conducted and both the open-ended axial interview and the structured theoretical interview were conducted. Each interview was recorded electronically with the verbal permission of each participant.

The web-based questionnaires were distributed by means of e-mail invitation and the respondents indicated the relationship between the affinities as well as a motivation to explain the decision.

The results of the relationships of the theoretical interviews as well as the web-based questionnaire were tallied in the Combined Theoretical Code Frequency Table. See Table 3 for the Combined Theoretical Code Frequency Table.

Table 3 Combined Theoretical Code Frequency Table

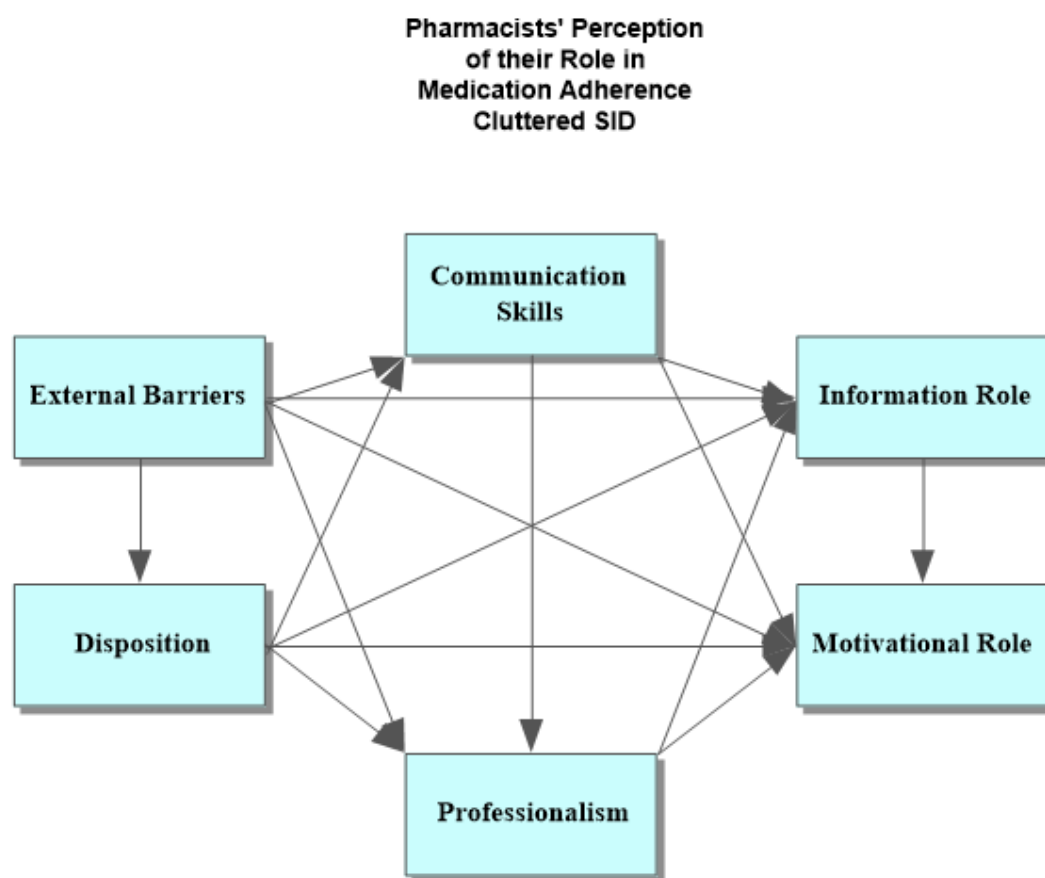
Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency	Affinity Pair Relationship	Frequency
1 > 2	132	2 > 3	290	3 > 5	176
1 < 2	261	2 < 3	116	3 < 5	273
1 > 3	378	2 > 4	202	3 > 6	105
1 < 3	107	2 < 4	155	3 < 6	360
1 > 4	173	2 > 5	242	4 > 5	350
1 < 4	274	2 < 5	116	4 < 5	109
1 > 5	256	2 > 6	244	4 > 6	120
1 < 5	200	2 < 6	128	4 < 6	303
1 > 6	209	3 > 4	108	5 > 6	103
1 < 6	257	3 < 4	339	5 < 6	334
	2247		1940		2233
Total Frequency					6420

The theoretical frequencies of both the Interviews and the web-based questionnaire were combined.

By using the information from the Combined Theoretical Code Frequency Table (Table 3), the Systems Influence Diagram (SID) Assignments protocol were followed in creating the SID or mind map of the pharmacists' perceptual system of their perceived roles in medication adherence of patients.

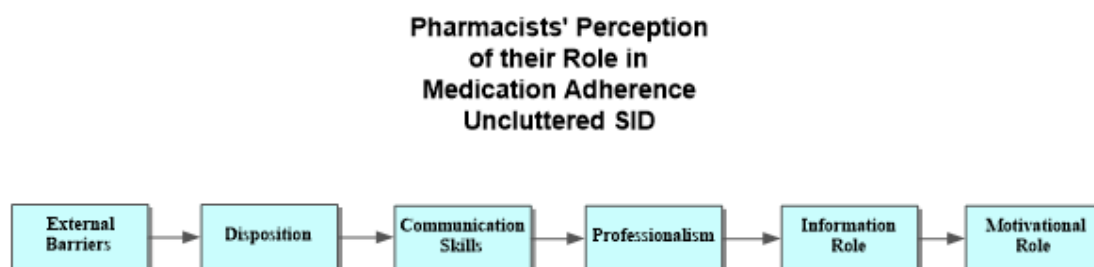
The Cluttered SID (Figure 1) was the first version of the SID that was developed and after that the Uncluttered SID (Figure 2).

Figure 1 Cluttered Systems Influence Diagram



The Cluttered SID is saturated with the all the relationship links between the affinities

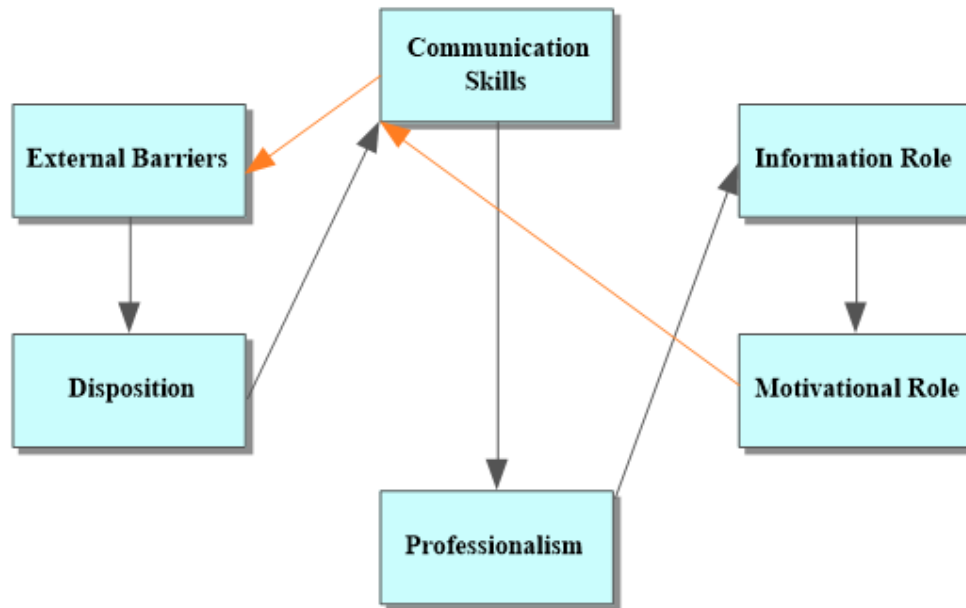
Figure 2 Uncluttered System Influence Diagram



All the redundant links between the affinities were removed and the simplest possible representation is presented.

The Pareto Protocol was applied to the system to determine the optimal number of relationships in the composite system and to assist in resolving all the ambiguous relationships and the Uncluttered Reconciled SID was developed. (Figure 3).

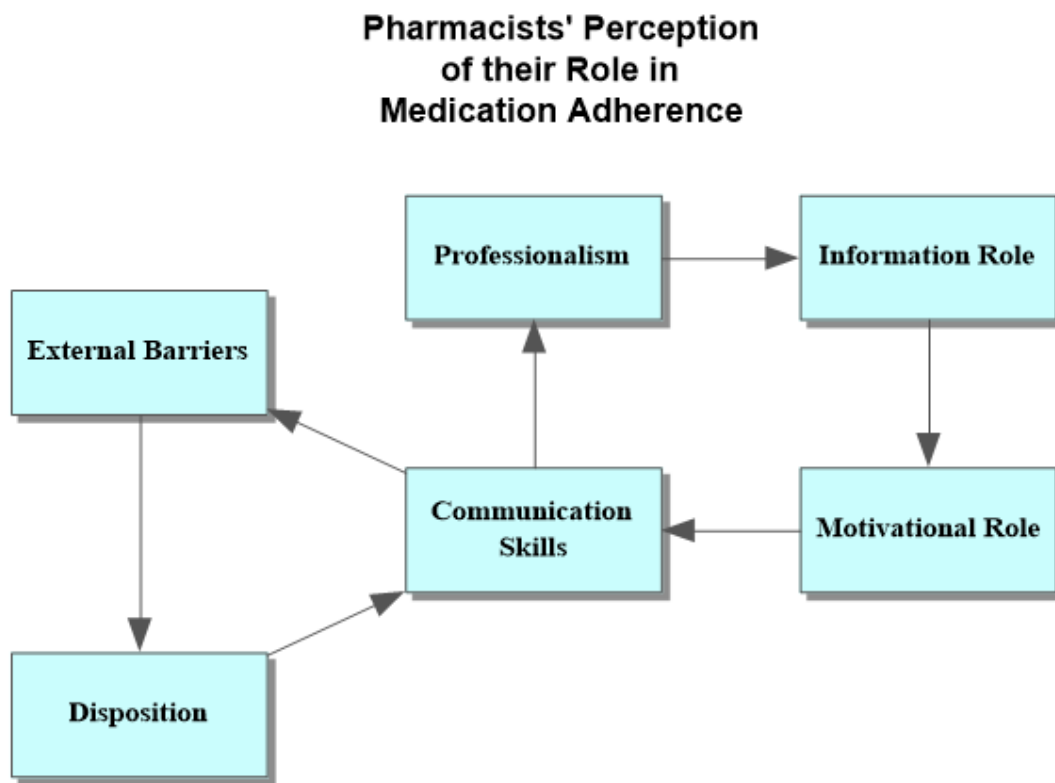
Figure 3 Uncluttered Reconciled Systems Influence Diagram



The Pareto Protocol is applied to the system and the end result is the Uncluttered Reconciled SID where all the ambiguous relationships (orange arrows) were resolved.

The final SID was developed (Figure 4)

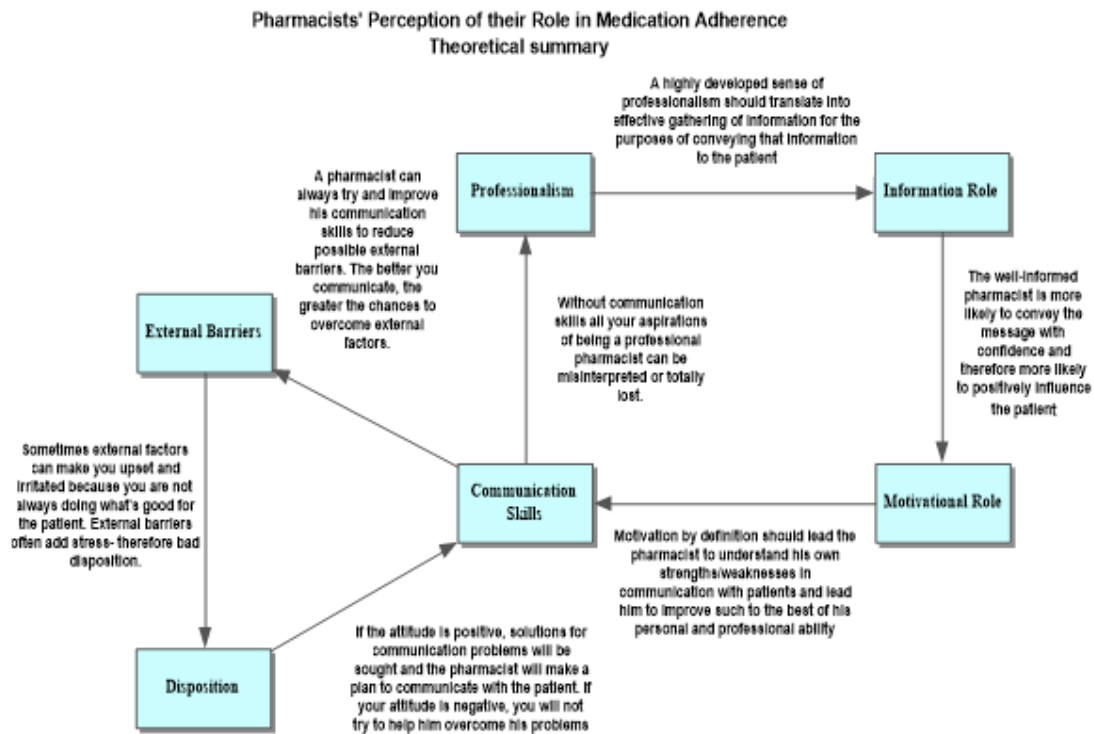
Figure 4 Final Composite Systems Influence Diagram



Discussion

The theoretical SID can be seen in Figure 5

Figure 5 Theoretical summary Systems Influence Diagram



The SID of the pharmacists' perception of their role in medication adherence of the patient can be described as a path which begins with *External Barriers* and ends with the *Motivational Role*. Affinities are perceived positively or negatively and can influence the experience of the next affinity ¹⁵.

According to Figure 6 the affinity *External Barriers* (primary driver), is positioned at the top left. Secondary drivers, placed in the bottom left and middle of the system, are *Disposition* and *Communication Skills*. On the top middle and left top side the secondary outcomes, *Professionalism* and *Information Role*, are found. The *Motivational Role* (primary outcome) is found in the middle right of the system.

In a scenario where the pharmacist is in the dispensary with the patient, the pharmacist wants to fulfil his/her *Motivational Role*, motivating the patient to use medicine correctly and to adhere. For the pharmacist to be at the right hand side of the system in the *Motivational Role*, the path from *External Barriers* to *Motivational Role* needs to have been followed.

The simple way to explain the path is to put the pharmacist in the role of the communicator with *Communication Skills* in the middle of the system. The pharmacist with *Professionalism* provides information (*Information Role*), to motivate the patient (*Motivational Role*) to be adherent to his/her

medication. In motivating the patient, the pharmacist might find it necessary to return to his/her Communication skills again to select applicable skills with Professionalism to provide the information and to motivate the patient.

The pharmacist's Communication Skills are also influenced by his/her Disposition which is in turn influenced by External Barriers (primary driver) and in turn influences all the other affinities from that position. Communications Skills may in part also influence the External Barriers

External barriers

External Barriers might negatively influence the Disposition of the pharmacist. External Barriers are a reality in the world of the pharmacist in South Africa. The pharmacist cannot escape this limitation, or has limited power and authority over it but it determines his/her practice and ultimately the interaction and relationship with the patient and medication adherence. Any pharmacist in his/her specific circumstances and interaction with the patient will always be aware of the role external factors play in practice. The availability of medicine will have a more direct influence on all pharmacists especially if they were only made aware of the situation with the patient standing in front of them. If medicine is not available the patient will not have medicine as prescribed by the doctor and the situation demands an immediate response and decision of the pharmacist. The responsibility sits squarely on the shoulders of the pharmacist to find a positive outcome for the problem. Pharmacists experience this problem very negatively especially because it is very difficult to control. The decision lies within the pharmacist, determined by his/her negative or a positive Disposition, to process the impact of the External Barriers and to apply his/her Communication Skills to ultimately motivate the patient.

Disposition

A pharmacist with a positive attitude communicates more effectively. *"Positive people also communicate more effectively and convey knowledge better than negative people."*

A negative Disposition will make the communication between the pharmacists and patient ineffective. *"If a pharmacist has a bad disposition, they will not be able to communicate effectively. If your attitude is negative towards your patient you will not be able to communicate properly with your patient - you might communicate in a rude way to your patient if you believe the patient has been rude to you."*

Communication Skills

The pharmacist controls the effect of the External Barriers through applying the appropriate Communication Skills in order to override the negative effect of his/her Disposition and explain

the situation to the patient. *"The better you communicate, the greater the chances to overcome external factors. Good/effective communication skills can often overcome or limit certain external barriers."*

Communication Skills are an integral part of the Professionalism of the pharmacist. *"Communication is the biggest single factor influencing the pharmacist's professional skills as it is in communicating with the patient that he/she realizes the importance of adhering to the advice given. If a pharmacist cannot communicate effectively no matter how professional they are, they are rendered ineffective". "Without communication skills all your aspirations of being a professional pharmacist can be misinterpreted or totally lost."*

Professionalism

A very important statement is made by the participants regarding Professionalism as *"Professionalism influences your informational role because if they do not see you as a professional person, they are not going to consider your information as being of value." "The level of professionalism of a pharmacist will determine how much effort he/she puts into educating the patient and how effective they will be in conveying this information."*

Information Role

The Information Role is where the pharmacist shares the necessary information regarding the patient's medicine, treatment, outcomes and suchlike with the patient. It is a role or action that is also required according to Ethical Rule 1 ¹⁷.

The pharmacist serves a broad community of patients and *"as a professional we have to share our knowledge to uplift those we serve. To hold all the information for ourselves, will not benefit the patient. Sharing the information will increase the patient's confidence that they are receiving the right medication."*

The pharmacist needs to remain abreast of new developments and knowledge regarding the profession and medication. *"Wanting the best for your patient makes a pharmacist strive to stay current with regard to information and advice and taking time to share appropriate knowledge"*

Motivational Role

The Motivational Role is the primary outcome of the system. The patient who knows the outcomes of his therapy is better motivated and adherent. *"If you can give the patient information and explain to him what the end result will be, then he will be motivated more easily to be adherent. If your information role is large and active, this will have a positive effect on the motivational role, because you just have so much more of a foundation to use for motivation."* There is a relationship

between the information you provide your patient with and your motivation of the said patient: *"The better the information provided to the patient, the better the motivational role of the pharmacist can be employed. The information that you are giving must not demotivate a patient from being adherent."*

Conclusion

The respondents perceived that they have a role to play in the medication adherence of their patients and willingly accepted the role. They see their role mainly as that of the motivation of the patient to be adherent by supplying the patient with all the necessary information regarding the medication with Professionalism by means of the appropriate Communication Skills. Pharmacists really care for their patients and do want to help the patient to the best of their ability even with External Barriers that hinder the service and care process.

This model can be used by pharmacists and the management of pharmacies to realise the factors that influence either the dynamics of an effective functioning of the pharmacy and medication adherence of the patient. External Barriers as the primary driver of the system, for example, need to be controlled continuously as they are barriers perceived as being outside the control of the pharmacist, but with an impact on his role in medication adherence

Possible limitations of the study are:

- Participants of the focus group and semi-structured IQA interviews lacked diversity as they were white, Afrikaans-speaking pharmacists from one city in South Africa in a rural area. A greater diversity of pharmacists from other ethnic groups such as Indian, Black and Coloured pharmacists speaking other languages, such as English or an indigenous language of South Africa are needed.
- These limitations did not, however, compromise the integrity of the research process, the research findings or the conclusions.

Possible future research projects might be aimed at:

- Determining what the patient's perception is of his/her own personal medication adherence. The need to hear the patient's side of the story is very strong as the patient is the final and ultimate decision-maker in terms of medication adherence.
- Exploring the impact and solutions External Barriers have for the practice of pharmacy in South Africa.
- Investigating skills training for patient-centred communication focussed on medication adherence for pharmacists.

- Exploring the difficulties associated with South African health-care moving towards a National Health Insurance (NHI) model and research is needed to investigate the role of pharmacists in medication adherence within such a new health-care model.

This study was the first to be done on the perception of South African pharmacists on their role in the medication adherence of their patients and provides new and previously unknown information in the format of a system and model aimed at benefiting all pharmacists in South Africa. The study gives a snapshot of the profession at a specific point in time uncovering several previously unknown elements impacting positively or negatively on the pharmacist fulfilling his/her important role in medication adherence

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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IJPP-17-0187

Title

Pharmacists' perceptual systems regarding their roles in medication adherence in South Africa: An IQA approach

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Date Submitted

29-Nov-2017

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ANNEXURE E:
OVERVIEW OF INTERACTIVE QUALITATIVE ANALYSIS PROCESS

by Norvell Northcutt and Danny McCoy (Northcutt & McCoy, 2015).

Northcutt, N. and D. McCoy, (2004), "Interactive Qualitative Analysis: A Systems Method for Qualitative Research," Sage Publications.

McCoy, Danny. *Interactive Qualitative Analysis: How to do Qualitative Research* Unpublished Manuscript 2014.

The following, subsequent descriptions of methodology were written by and used with the permission of Northcutt and McCoy.

IQA Methodology

What is IQA?

Developed by Northcutt and McCoy at The University of Texas and published in their groundbreaking book, *Interactive Qualitative Analysis: A Systems Method for Qualitative Research*, Interactive Qualitative Analysis (IQA) is a systems approach to qualitative research, which seeks to advance upon phenomenology and grounded theory. Where grounded theory falls short, IQA picks up with systematic, protocol driven procedures and the ability to draw a system of influence. IQA utilizes protocols to develop research design, identify themes and draw systems. IQA was developed to take the mystery out of research and to provide graduate students with a tool chest for dissertation research. IQA integrates the identification of the nature of the problem with solutions, even when you are not sure what the problem is.

IQA is the art of seeing what is invisible to others and naming it. IQA identifies connections between all causes of a problem with the ability to draw a system of influence, an easy to understand visual representation of the phenomenon. IQA integrates the identification of the nature of the problem with solutions, even when one is not sure what the problem is.

IQA also reconciles quantitative TQM rigor to a qualitative design of data collection and analysis. IQA seeks to capture the lived reality of people, actively involving participants in the mapping of their stories. IQA identifies relationships among self-identified components of an issue. IQA integrates the identification of the nature of the problem with solutions, even when you are not sure what the problem is. IQA builds consensus among the focus group participants. IQA builds strategies around the nature of the problem.

The purpose of an IQA study is to allow a group to create its own interpretive “map” then to similarly construct individual “maps” of meaning: together, the two levels of meaning are used by the researcher as the foundation for interpretation. The “map” is represented as a system of states (affinities) held together by roadways (relationships among affinities). In plain language, an IQA study prompts the participants to examine these issues with respect to a phenomenon important to them:

- ◆ What does this mean to you?
- ◆ What led to this?
- ◆ What are the results?

IQA begins with a group process methods adapted from the Total Quality Management (TQM) movement to produce and analyze qualitative data. IQA seeks on the one hand to capture the "lived reality" of people and involve the participants in the study in the meaning of their stories, the identification of constructs and relationships, and the development of theory; and on the other hand to produce high-level abstraction of this reality that captures the participants' "cognitive map" or their "theory in perception."

The systems perspective views relationships as interconnected parts with the whole being greater than the individual parts. Change in one part, leads to changes among all parts and the system itself. IQA combines the tradition of phenomenology, which asks what is the structure and the essence of the experience of the phenomenon for the people in the study, and systems theory whose central questions is: how and why does this system function as a whole. So IQA asks two broad questions: 1) What are the dimensions of the phenomena from the participants' point of view; and 2) How do the dimensions relate to one another?

The dimensions are the result of both inductive and deductive group processes and are called "Affinities" or textual references or terms related around a common meaning or theme. After Affinities are defined by being grouped inductively (from the particular to the general) and then assigned a range of meanings deductively (from the general to the particular), their relationships are explored systematically to produce a comprehensive picture. The analysis of the textual data is done by three kinds of coding activities and the participants both generate the data and analyze it.

A theoretical framework will emerge through the coding activities of the participative research method. This theoretical framework will depict a "theory of action" or a "theory-in-use" or what the participants actually experience.

Hence, IQA is a method of qualitative research, which relies upon group processes, interviews, and observation to understand and explain naturally occurring phenomena in a naturally occurring state. In addition, data collection and much of the data analysis are socially constructed by the participants under study; resulting in a theory grounded in the data. The collaborative nature of the processes helps manage the influence of organizational politics and protects minority voices and perspectives.

IQA seeks to balance the paradigms. IQA is an approach to qualitative research that attempts to integrate and reconcile some of the disjuncture in theorizing about the purposes and methods of research.

IQA is the art of seeing what is invisible to others and naming it. IQA identifies connections between all causes of a problem with the ability to draw a system of influence, an easy to understand visual representation of the phenomenon. IQA integrates the identification of the nature of the problem with solutions, even when one is not sure what the problem is.

Understanding a System

Systems have two components: *elements* and *relationships among the elements*. The elements may be as disparate as physical objects (parts in a manufacturing process, for example), mathematical constructs (acceleration, profit, loss, or IQ, for that matter), or for the purposes of this approach to qualitative research, categories of meaning. Understanding a system means:

- ◆ Identifying the elements of the system
- ◆ Describing the relationships among the elements
- ◆ Understanding how the elements and relationships dynamically interact to result in different *states* of the system, which implies
 - Interpretation – What is the nature of the unity represented by the system?
 - Making intrasystemic inferences – What are the logical effects of changes of state of some elements on others?
 - Making extra-system inferences – Analyzing the effects of outside influences (interventions) on the system – What may we logically expect the effects of extra-systemic effects to be?

The three major inquiries above apply to a single system. By *single system*, we mean the systemic representation of a phenomenon from one person or group's viewpoint. If we have more than one system, a fourth very useful inquiry is possible:

- ◆ How do two (or more) systems compare in terms of elements and relationships, and what are the interpretive implications, both intra- and extra-systemic, of the comparison?

IQA Phases

IQA research flow has four distinct phases: Research Design, Focus Group, Interview, and Report (Results/Analysis and Interpretation/Implications). Research Design provides a series of tools to help articulate problems of interest, to identify constituencies that have an interest in the problem, and to state research questions that are implied by the problem statement. IQA then uses focus groups to identify the “map pieces” (affinities) of a system or systems that will ultimately represent the group's experience with the phenomenon. The group next identifies the “states,” or the relationships between each of the affinities. Using a set of protocols or rules stemming from IQA systems theory, a system is drawn that represents a “mind-map” of the group's reality. Affinities defined by the group are then used to develop a protocol for interviews, which are invaluable in to further explore the meanings of the affinities and their systemic relationships. A comprehensive system diagram is developed from the interviews to explain the phenomenon. The final report allows the researcher to describe the affinities and their relationships, to make comparisons among systems and individuals, to make inferences (predictions) based on the properties of the system(s). Following is a summary of each of the stages in the research flow.

Research Design

- ◆ Identify the “problem” or phenomenon of study (what you want to study)
- ◆ Identify the constituencies (who you want to study)
- ◆ Identify comparisons (for strength of analysis)
- ◆ Produce an Issue Statement and Focus Group Warm-up Exercise

Focus Group

- ◆ Identify themes or “affinities”
- ◆ Draw a crude system
- ◆ Produce an interview protocol

Interview

- ◆ Obtain rich descriptions of each theme
- ◆ Obtain rich descriptions of each relationship
- ◆ Identify relationships between each theme
- ◆ Produce a system

Report (Results/Analysis and Interpretation/Implications)

- ◆ Describe each theme
- ◆ Describe each relationship
- ◆ Describe the system
- ◆ Compare groups
- ◆ Make predictions
- ◆ Identify other theories that resemble or support the researcher's findings

It is important to note that each of the phases in the IQA research flow is represented by a protocol, and each protocol is supported by a document or set of documents, resulting in a public data collection and analysis audit trail for the entire study. In other words, issues of credibility and trustworthiness are addressed at least in part not only by a standard analytical protocol that is dependent neither on the subject matter (the nature of the affinities) nor on the inclinations of the researcher, but by the standardization and documentation of each step in the research process. Below is a system summarizing the phase of an IQA study. Note that for each element in the research flow, which represents a particular protocol in the first system diagram, there is a supporting document or a set of documents that serves two purposes: First, an audit trail of both data gathering or generation and analysis is created, that is, open to public inspection; and second, information and analytical results from each step feed to the next.

IQA Research Flow

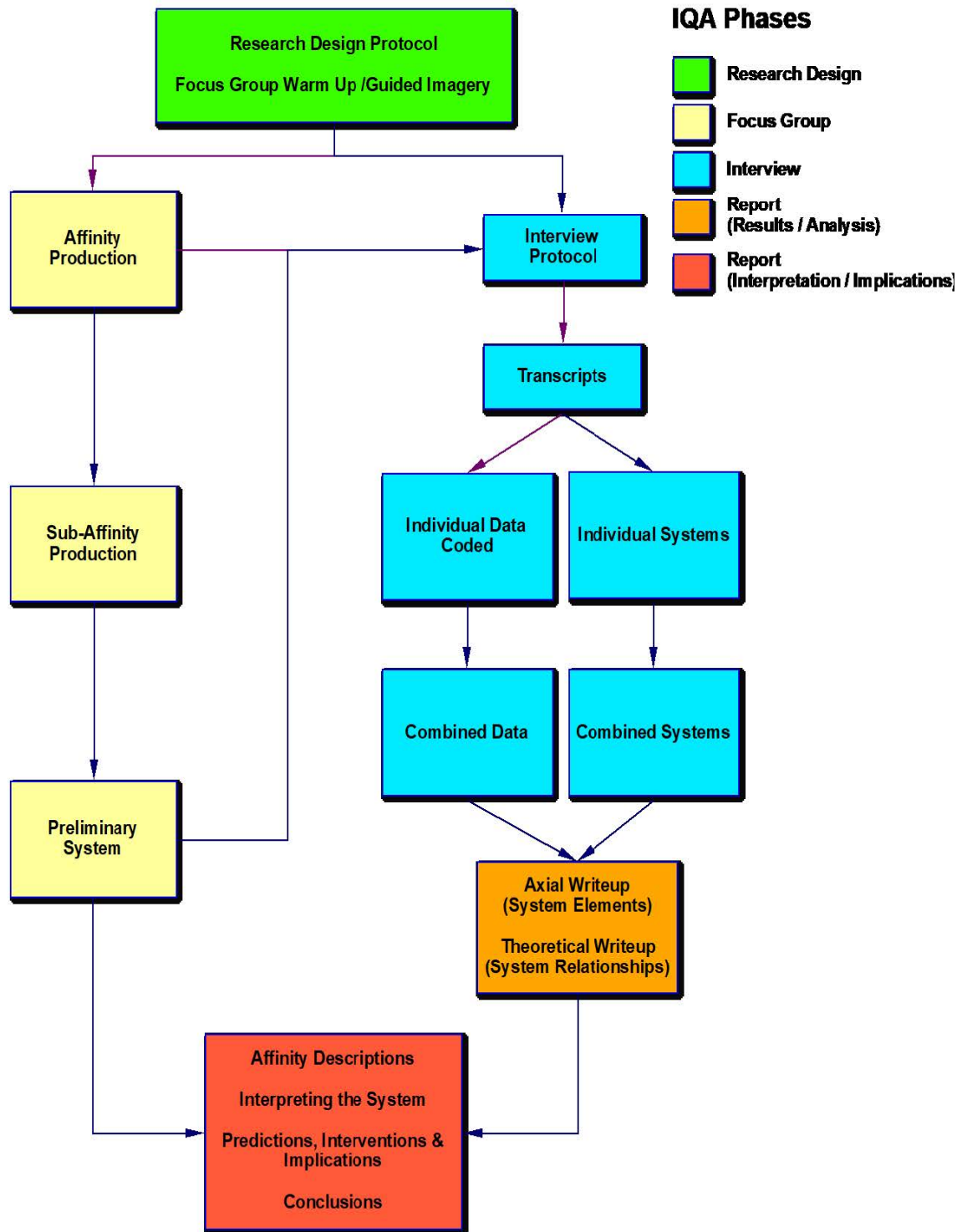


Figure A1: IQA Research Flow

IQA Research Design

Thinking about the design for a study typically begins with a problem statement, which at the early stages of design may be no more than a vague concern; a desire to know more about an ill-defined and poorly-understood phenomenon; or a need to correct or ameliorate a situation, the nature of which is not fully circumscribed. This initial lack of clarity is probably the most difficult hurdle for researchers to overcome, and the literature from both the quantitative and qualitative streams tends to give this element of research design less than meticulous attention. If the collection (or generation, or creation, depending on one's point of view), analysis, and interpretation of qualitative data can be approached from a systems point of view, it follows that the question of how to think about doing qualitative research can itself be the subject of an IQA systems analysis.

IQA research design starts with what is traditionally called a "problem." By "problem" we mean nothing more dramatic than an issue someone thinks is either interesting or needs attention. Often at this stage, a solution to some perceived problem is sought, but it is difficult to articulate what the problem really is. By its very nature, the problem is not clearly defined at this point. Rather than simply demanding that the problem be made explicit or simply hoping that a well-defined problem will somehow rise from the chaos of our activity, the IQA research flow presumes that ambiguity is a characteristic of the early thinking about a project and deals with this ambiguity, reducing it with every recursion around the IQA design cycle. IQA research design starts with the vague problem and seeks to identify those who have something to say about the problem (constituencies) and what question to ask them (an issue statement). Next research design seeks to identify comparisons of constituencies useful to understanding the phenomenon.

There are three universal research questions. It might be useful at this point to restate the section above, which describes the issues that may be addressed through systems representation of phenomena, in more conventional language. If we have only one system, two research questions are possible:

1. What are the components of the system?
2. How are the components related to each other?

If we have a minimum of two systems, then a third question can be asked:

3. How do the systems compare?

Note that the three questions are in a requisite sequence. One cannot answer a question about relationships without having first identified the things (components) that are in relationship to each other. Neither can the third question be answered unless the first two have been addressed with respect to at least two systems.

IQA research design is not conceived of as a linear get-it-right-the-first-time process; rather, it is circular in nature, as implied by the process graphic, which is shown below. However, while going in circles is a metaphor for getting nowhere, the recursive feature of IQA design allows for successive refinements of each of the following:

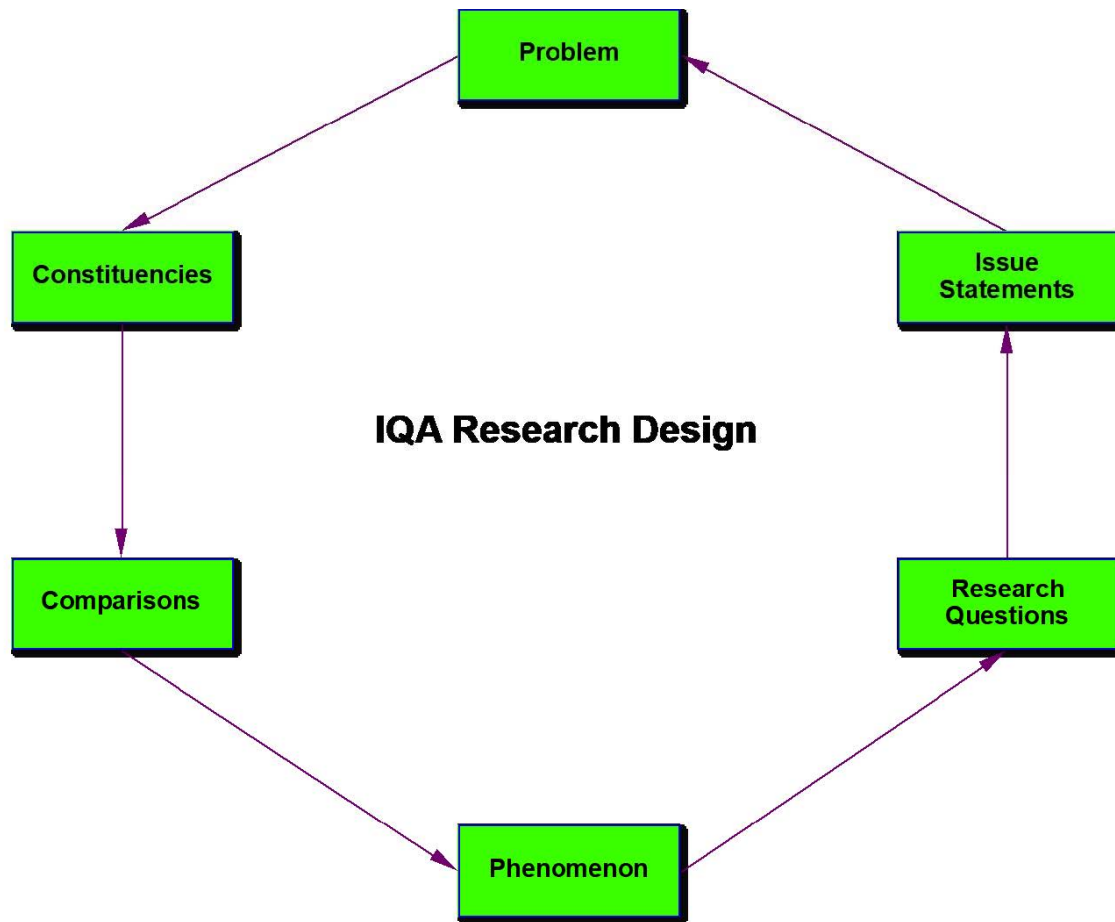


Figure A2: IQA Research Design

Problem - The problem reflects a simple observation or concern that the researcher is interested in further exploring. The problem seeks answers to *How* and *Why* questions.

Constituencies - Constituency is a term reflecting both an interest (perceptual or phenomenological distance) and power over the phenomenon, which is at the center of the problem. A constituency is anyone who

- ◆ Has something to say about the phenomenon
- ◆ Can do something about the phenomenon

Comparisons – Comparisons generate research questions.

Phenomenon - The phenomenon is an abstract idea (but a simple name) capable of producing a system with elements and relationships that not only describe the phenomenon, but how it works.

Issue Statement - Different constituencies have different perspectives on the same phenomenon, so the issue statement must be meaningful to each. The issue statement is quite simple and is always a variation of *Tell me about the phenomenon* but it must be presented in terms that are real to a given constituency. The issue statement is the question we ask to get the audience to speak about the phenomenon.

Research Questions – There are three universal research questions. If only one constituency is involved two, and only two, questions can be answered from a systems point of view:

1. What are the elements that make up the Phenomenon?
2. How do these elements relate in a system of influence?

If more than one constituency comprises the study, a third systemic inquiry is possible:

3. How do the experiences of constituency 1 compare to constituency 2?

Research Design Protocol

Problem		
Scenario		
<i>Identify the Scenario. The Scenario outlines a simple observation or assumption for which the researcher is interested in knowing more about.</i>		
Role of the Researcher	Purpose of the Study	
☐ Academic Researcher	☐ Academic Research	
☐ Graduate Student	☐ Dissertation	
☐ Consultant	☐ Solving a Problem	
☐ Internal Organization Research	☐ General Understanding of a Problem	
☐ Other _____	☐ Other _____	
Readers/Users of the Study Results		
<i>Identify any potential readers or uses of the results of the study and why they will need it.</i>		
Problem Question		
<i>Identify the Problem Question. The Problem Question reflects a simple observation or concern that the researcher is interested in further exploring. The Problem Question often takes the form of a how or why question.</i>		
Domain		
<i>Identify the Domain. The domain reflects the very general topic or area in which the problem resides.</i>		
Potential Causes of the Problem or Success		
<i>Brainstorm potential causes of the problem as possible.</i>	<i>Do not censor your ideas.</i>	<i>Identify as many as possible.</i>
♦	♦	♦
♦	♦	♦
♦	♦	♦

Constituencies		
Constituency	Distance (Close to Far)	Power (High to Low)
Individual		
Intermediary		
Authority		
Comparisons		
Individual	vs.	
	vs.	
Intermediary	vs.	
	vs.	
Authority	vs.	
	vs.	
Cross Constituency	vs.	
	vs.	vs.

Phenomenon		
Constituency		Phenomenon
Location of Events		
Individual	Intermediary	Authority
Where Does This Take Place?	Where Does This Take Place?	Where Does This Take Place?
♦	♦	♦
♦	♦	♦
♦	♦	♦
Range of Time		
Individual	Intermediary	Authority
When Does It Take Place?	When Does It Take Place?	When Does It Take Place?
♦	♦	♦
♦	♦	♦
♦	♦	♦
Constituency	Research Questions	Issue Statement
	1. What are the elements that make up <u>the Phenomenon</u> ? 2. How do these elements relate in a system of influence? 3. How do the experiences of <u>constituency 1</u> compare to <u>constituency 2</u> ?	Tell me about <u>the Phenomenon</u> .
	1. What are the elements that make up <u>the Phenomenon</u> ? 2. How do these elements relate in a system of influence? 3. How do the experiences of <u>constituency 1</u> compare to <u>constituency 2</u> ?	Tell me about <u>the Phenomenon</u> .
	1. What are the elements that make up <u>the Phenomenon</u> ? 2. How do these elements relate in a system of influence? 3. How do the experiences of <u>constituency 1</u> compare to <u>constituency 2</u> ?	Tell me about <u>the Phenomenon</u> .

Final Answer	
Problem:	
Constituency:	
Comparisons:	
Phenomenon:	
Research Questions:	
Issue Statement:	

IQA Focus Groups

Focus Group Warm-up Exercise

The final result of the IQA Research Design Phase is the Focus Group Warm-up Exercise. This protocol is used in the Focus Group Phase and uses guided imagery to ask the constituent groups to think about the phenomenon and provide a “dump” of thoughts.

IQA studies usually begin with a focus group, which is a group of people who share some common experience, work or live within some common structure, or have a similar background. This definition suggests that the researcher should think first about commonalities rather than differences when designing the composition of the group; IQA focus groups are formed with groups of individuals who may certainly have varied opinions and experiences with the system under study, but who more critically share a common perspective.

The Focus Group Phase of IQA begins with a guided imagery exercise using the Focus Group Warm-up Exercise produced in the Research Design Phase. From the researchers prospective, the IQA Focus Group Process is designed to identify the themes or affinities that make up the phenomenon. The focus group is asked to reflect on their experiences of the phenomenon and give a “dump” of all thoughts. The researcher next facilitates a “clumping” and “naming” exercise in order to identify the affinities. The final result of the Focus Group Phase is to identify the affinities that will be used to develop the Interview Protocol.

Focus Group Warm-up Exercise

I would like you to think for a while about the phenomenon—Very brief definition of the phenomenon

In a few minutes, I am going to ask you to tell me about your experience with the phenomenon.

So let's begin.

- Please allow yourself to be as comfortable as possible.
- Put your thoughts from the day aside to allow your attention to focus on the phenomenon.
- Close your eyes to increase your state of relaxation and your ability to focus on the phenomenon.
- Now imagine yourself in the environment of the phenomenon. See yourself in all of the places the phenomenon occurs. (long pause)
- Imagine yourself in the time frame the phenomenon occurred. (long pause)
- See all of the places, events and people the phenomenon. (long pause)
- See yourself engaging in the activities of the phenomenon. (long pause)
- Notice your surroundings. (long pause) Looking around you, take in the sights, the sounds that are associated with being in the environment of the phenomenon. (long pause)
- Allow yourself to become aware of your environment with all of your senses.
- Focus on what it feels like to be totally absorbed in the environment of the phenomenon. Be there in your mind. (long pause)
- Review all your recollections up to this moment. (pause)
- Allow all these thoughts to remain calmly in your consciousness and ready to be revealed.

Thank you for allowing these valuable observations and recollections to come forward.

Please allow yourself to gently allow your consciousness back to this time and place and when you are ready, open your eyes.

Good. Thank you.

And now, with all that you remember—and that is all that you just noticed—please write down your thoughts on these cards.

Write one thought or experience per card. Feel free to record a word, a phrase, a sentence, or a picture to capture that thought . . . and. . . Tell me about the phenomenon.

Identification of Affinities

The first step for an IQA focus group is silent brainstorming. During this phase a focus group is asked to write their experiences about the subject on note cards, one thought per card. After

producing as many cards as possible, the focus group is asked to tape the cards along a wall. The researcher reads each card and the group comes to a consensus as to the meaning of the card, thus the foundations are laid for constructing, through discourse, a shared reality among group members. The facilitator then asks the group to silently organize the cards into groups of meaning, an activity referred to as inductive coding. Grouping is followed by the affinity naming and revision phase (axial coding), which consists of giving a name to the group (affinity) and sorting any cards that may have been mis-categorized into the proper group.

IQA data collection/analysis techniques originated from Total Quality Management (TQM) processes designed to capture knowledge from organizational members to solve problems and improve processes. A major TQM assumption is that people who are closest to the job best understand what is wrong and how to fix it. Similarly, IQA data collection techniques assist members of a group close to a phenomenon of interest in describing and labeling their experiences, and in articulating perceived relationships among these experiences to produce a theory in perception or a conceptual map, which is a systems representation of how a person or a group understands a particular phenomenon. This system consists of categories of meaning called *affinities* and the perceived causal relationships among the affinities.

The first step in creating a mind map is to assist the focus group members in organizing their thoughts into a manageable number of categories or affinities, sets of textual references that have an underlying common meaning or theme, synonymous to *factors* or *topics*. During affinity production, the constituents are given an opportunity to reflect upon their experiences and then express their thoughts and feelings. The thoughts of the group as a whole are combined and organized into common themes or affinities by the group itself with the aid of a facilitator. The group collectively names the affinities and helps the researcher create a detailed written description or definition of each affinity. The goal is to produce the smallest number of affinities with the greatest amount of detail or “richness.”

Axial coding seeks to name, reorganize, clarify, and refine the affinities. While the first kind of coding is, as the name implies, almost exclusively inductive, axial coding cycles back and forth from inductive to deductive. Once the affinities are refined and often reorganized by the group participants, they are encouraged to narrow down the meanings of the affinities and their categories. Major categories of affinities are reviewed and then may be combined or divided into hierarchical systems of sub-affinities.

An affinity name is a general term that represents an experience to a particular group or individual when probed. The purpose of an affinity is to explore the range of meaning to any one group. An affinity typically has a range of meaning as well as a range of timbre. Further, both the meaning and timbre are not necessarily unidimensional (such as temperature, which can range only from hot to cold) and therefore can require sub affinities that exist in multiple dimensions. A common example is emotions. Emotions may have a range of timbre described by the group as

positive (happy) to negative (sad). At the same time, there are possibilities of sub affinities within this affinity that show a range of meaning: such words as “frustration” “ecstasy” and “challenging” all point to differences in meaning as well as differences in timbre.

Once again, this process is achieved through group discussion and consensus. The descriptions are refined and narrowed by the group until each participant agrees that the definition accurately reflects the meaning of the affinity. Affinities are given titles that accurately reflect the meaning of the affinity. Affinities are given titles as determined by participants, which are documented on header notepads and placed at the top of each vertical column. An example is provided below.

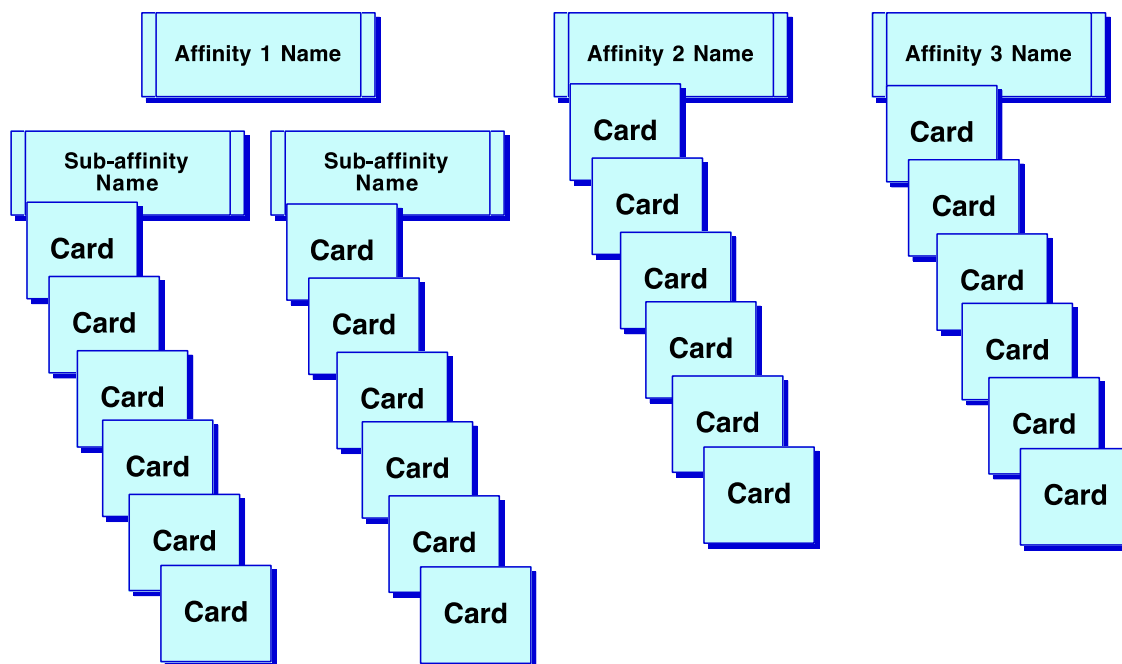


Figure A3: Affinity Naming

Renaming and Reconciling Affinities for the Interview Protocol

Renaming affinities is often necessary when using focus group work to build an interview protocol. Sometimes focus group affinity names are either too specific or metaphorical, or too abstract: in either case, the focus group name acts as a barrier rather than a facilitator to communication with an audience. For example, sometimes the group may put a qualifier on an affinity name. A very common one is “negative emotions” or “positive emotions.” The two “affinities” are much more usefully and accurately represented as two subaffinities of the more general category of “emotions,” as are other labels such as frustration, anger, fun, and happy. As another example: A focus group produced the category (among others) they called “external context.” An interviewee who did not participate in the focus group, when asked to talk about “external context” within the general subject of student achievement would probably have no idea of the reference for the name. An Affinity name should be simple enough to immediately

trigger a response with a minimum of explanation by the interviewer. In this sense, the “best” affinity name requires the interviewer to say nothing other than, “Tell me about (affinity name)”.

The whole idea of IQA is to allow members of a constituency to define the meaning and the range of the elements of the phenomenon and to articulate how these elements are connected in their understanding of the phenomenon. The researcher only facilitates drawing descriptions out of the group and organizing the descriptions into similar chunks: therefore, affinity descriptions in an interview protocol should only help to define the name and not indicate a “preferred” timbre or meaning of the category. A good affinity and description is a neutral presentation: It avoids any bias and does not lead the respondent down only one timbre path. For example, if you ask graduate students “Tell me about stress,” they will tell you all about stress as a graduate student. But if you say, “Tell me about emotions,” graduate students will tell you about stress, anxiety, fear, satisfaction, enervation, exhilaration, and perhaps even about even a few moments of contentment and relaxation. Leading a respondent down too

narrow a path will rule out the possibility of describing all the other paths. A good affinity allows for the full range. A particular group may only experience one path, but that is what research often is about, to identify how one group compares to another. Ask a group of graduate students who are at risk of quitting about emotions and you will probably get an overwhelming set of negative descriptions, but a group who are about to graduate will very likely have a different understanding of negative emotions while at the same time remembering some as satisfying or happy

Some may fear that some affinities may be overlooked by the focus group. There is nothing wrong with adding additional affinities to the system if it gives more explanatory power to the topic. IQA recommends conducting 2 focus groups with different participants who are members of the same constituency and reconciling the two sets of affinities. Often the researcher will note that both groups generate nearly the same affinities. Naming may be different but affinities could be paired off as having the same meaning. On occasion, one group might identify an affinity, whereas the other group might identify a category of meaning that they believed to be a sub-affinity, or the dialectic, of a larger category of meaning. While many of the affinities may have the exact same name between both groups, there may be a few that on first appearance seem to be unique to one group. In order to check to see if an affinity is unique to just one group, the researcher must go back to the cards to see if there were any references to that affinity in the other group. The researcher must reconcile whether it was an affinity or sub-affinity, the two groups had produced similar categories. The researcher resolves the issue by compiling a new affinity list that took into account both focus group responses.

Identification of Sub-Affinities

Sub-Affinities can be developed as a part of interview transcript analysis or through additional focus groups. To identify sub-affinities using interview transcripts the researcher conducts the interviews based on the affinities. Transcripts are examined and each affinity is coded to identify sub-affinities. Conducting additional focus groups may also be used to identify sub-Affinities. Using the same guided imagery process used to identify affinities, the researcher asks *tell me about each affinity*. Cards are generated, sorted and named. The process is repeated for each affinity.

Interview Protocol

The final result of the Focus Group Phase is to identify the affinities to be used in the Interview Protocol.

IQA Interviews

IQA Interviews

The IQA interview is a semi-structured interview. It is designed to capitalize on the consistency afforded by highly structured interview and the level of detail offered by open-ended or emergent interviews. The interview questions are designed and based on the affinities developed by the focus group members. An IQA interview protocol is designed to achieve specific objectives, each of which relate directly to the research questions of the study. The affinities produced by the focus group are used to create an interview protocol. The interview protocol is used to elicit descriptions of affinities created by the focus group and to identify and elicit descriptions of relationships among the affinities. In particular, IQA interviews serve to:

- ◆ Add richness and depth description of the meaning of affinities that is not possible with a focus group alone
- ◆ Allow for individual mind-maps, which can be used in a debriefing session as an interpretive aid to the investigator

Structuring the interviews with the same questions around affinities that are discussed in a prescribed order (although follow-up questions or probes in the first phase will naturally vary) allows the researcher to ensure that each affinity is explored thoroughly and consistently. Following this carefully prepared protocol then frees the researcher to focus attention on eliciting and responding to each interviewee's distinct responses. This careful, procedural preparation supports the interviewer's art in engaging and eliciting each person's experience. This process enables the researcher to achieve several critical purposes with the IQA interviews:

- ◆ To provide data representation the respondent's experience with the phenomenon
- ◆ To provide data representing the respondent's personal mind map
- ◆ To help the researcher code the impact and influences of these affinities in order to create a systems influence diagram
- ◆ To provide data representing the group's collective SID (mind-map)

The creation of an IQA interview protocol is straightforward. The interview protocol consists of two parts: 1) the open-end *axial interview* designed to provide rich description of affinities by the respondents; and 2) the structured *theoretical interview* designed to identify relationships between affinities. The axial interview section is derived from the affinities identified by the focus group, while the theoretical interview is presented through an Affinity Relationship Table.

The focus group affinity identification is the basis of the open-ended questions of the axial interview. The interviewer need only address the affinity names themselves. The interviewer seeks to address, "What does the affinity mean to you? Tell me about your experience with the affinity?"

The Affinity Relationship Table (ART) is the basis for the theoretical interview. The table provides a quick reference of all of the possible relationships between affinities. Presented with a copy of the table, the respondents are asked if they believe there is a relationship between each affinity and to explain why they believe so. They are probed to provide their experiences with the relationship. Each respondent is asked to determine the nature of the relationship between all possible pairs of affinities. For any two affinities A and B, there are only three

possible relationships: either A directly influences B, or B directly influences A, or there is no direct influence between A and B. These *Rules for Hypothesizing* are summarized as follows:

For any 2 affinities A and B, either
 $A \rightarrow B$ (A influences B)
 $A \leftarrow B$ (B influences A)
 $A \times B$ (No relationship)

They are asked to record their responses in an ART, which is a matrix containing all the perceived relationships in the system.

Affinity Name

1.
2.
3.
4.
5.
6.
7.
8.

Possible Relationships

$A \rightarrow B$
 $A \leftarrow B$
 $A \times B$ (No Relationship)

Affinity Relationship Table		
Affinity Pair Relationship		Affinity Pair Relationship
1 $\leftarrow$ 2		3 $\rightarrow$ 5
1 $\leftarrow$ 3		3 $\rightarrow$ 6
1 $\leftarrow$ 4		3 $\rightarrow$ 7
1 $\leftarrow$ 5		3 $\rightarrow$ 8
1 $\leftarrow$ 6		4 $\rightarrow$ 5
1 $\leftarrow$ 7		4 $\rightarrow$ 6
1 $\leftarrow$ 8		4 $\leftarrow$ 7
2 $\leftarrow$ 3		4 $\rightarrow$ 8
2 $\leftarrow$ 4		5 $\rightarrow$ 6
2 $\leftarrow$ 5		5 $\leftarrow$ 7
2 $\leftarrow$ 6		5 $\leftarrow$ 8
2 $\leftarrow$ 7		6 $\leftarrow$ 7
2 $\leftarrow$ 8		6 $\leftarrow$ 8
3 $\rightarrow$ 4		7 $\rightarrow$ 8

Interview Transcripts

The final result of the Interview Phase is a collection of transcripts for each respondent.

IQA Report

The last phase of an IQA or any study is that of the report, which in the case of an IQA study proceeds not only from the descriptions of the affinities produced by the respondents, but from two other sources as well: (1) the respondents' judgments of the cause-and-effect relationships among the affinities and the system these judgments create; and (2) comparison of mind-maps, both at an aggregate level (composite SIDs from interviews for different constituencies) and at an individual level (examining individual mind-maps or the variability within a constituency). While there are several choices of formats for an IQA study, the dissertation format is most frequently used.

Affinities and relationships are described with the words of the group. Since IQA is designed to describe the perceptions of the phenomenon or the lived reality of the group, it makes sense to describe the affinity purely in the words of the group. Comparison is the fuel for the interpretive machine, and systems as represented by mind-maps or SIDs, provide multiple opportunities for comparison.

The IQA systems approach is designed to be of the greatest possible assistance in interpretation. The focus group is used to identify the affinities, each of which is well documented as part of the focus group protocol. Interviews then expand on the descriptions of the affinities. Since the primary result of an IQA study is a picture of a system or systems, it is no accident that the process that produced these systems is designed to aid in the writing process. The typical IQA report accomplishes three goals:

1. Naming and describing the elements of the system
2. Explaining relationships among elements of a system (system dynamics)
3. Comparing systems

To systematically approach the report, IQA splits the process into two phases (1) Results / Analysis and (2) Interpretation / Implications. These two phases are reflected in the typical Chapter 4 and 5 of the dissertation. "Results / Analysis" on the one hand and "Interpretation / Implications" on the other is arguably a distinction without a difference. These terms have a strong positivist flavor, and indeed the ontological barrier between our findings and the meaning we give them is much more permeable than the names imply. Nevertheless, the distinction can be useful for presentational purposes, and IQA makes a distinction that is consistent with the one described above. "Results / Analysis," in IQA terminology, refers to describing the affinities and the systems. "Interpretation / Implications" refers to comparing systems and setting these comparisons into the two larger contexts of theory (conceptual implications) and application (pragmatic implications).

The IQA Results / Analysis chapter provides the researcher the opportunity to describe the phenomenon in the participants voice and to present the data free of commentary, interpretation or opinion by the researcher. Through a rigorous use of protocols, transcripts are coded and systems are drawn. The story of each constituency group is told by aggregating axial codes of each affinity to tell the story of the group as a whole. The system is built one relationship at a time by aggregating theoretical codes to tell the story of the group as a whole. The resulting

report (dissertation Chapter 4) is an Axial Write-up, Theoretical Write-up and presentation of the SID.

The IQA Interpretation / Implications chapter (dissertation Chapter 5) provides the researcher the opportunity to describe the phenomenon in the researcher's voice. The researcher is free to interpret the data, suggest interventions and introduce other literature that reinforces the researcher's results. In Chapter 5, the researcher re-engages with the literature to accomplish two goals: first, to re-interpret the literature reviewed in chapter 2 in the light of what has been learned and second, to identify other areas of literature that now have relevance in the light of what has been learned. The applications section of this chapter is the investigator's response to the question of pragmatic utility: What is the study good for?

IQA Report (Results / Analysis)

The results section provides to the reader the facts to be used in later discussion. This section should be as free from researcher interpretation and opinion as possible. By presenting only the facts, the researcher adds credibility to the data. This also provides an audit trail for later arguments. Providing just the data allows the reader to draw his or her own conclusions, free from researcher bias.

- ◆ System Elements (Describe each Affinity)
 - Composite affinity descriptions (affinity write-up)
 - Describe each affinity from the point of view of the group as a whole
- ◆ System Relationships (Describe each Relationship)
 - Composite theoretical descriptions (theoretical write-up)
 - Draw the cluttered SID one affinity at a time while describing the relationships
 - System influence diagram (SID)
 - Present the uncluttered SID

The Results / Analysis Phase of the IQA Report is primarily an exercise in organization and presentation. Raw transcripts are processed through a series of protocols designed with the purpose identifying the meaning of each affinity by telling the composite story of each constituency. This phase also produces the relationship-by-relationship building of the composite system while telling the group story of how each affinity is related to the others.

Transcripts

All interviews are transcribed word for word. The transcript is formatted to provide the researcher quick identification of the sections. The researcher then edits the transcripts to remove all spoken word stumbles and poor grammar. Personal identifiers are removed or generalized.

Axial Coding

Axial Code Table (ACT)

Once the transcripts had been prepared, the researcher analyzes the text for axial codes, which are specific examples of discourse that illustrate or allude to an affinity. The researcher then documents the reference for retrieval by recording the affinity number on the line of transcript that refers to the affinity and by documenting the line numbers and affinity numbers in the Individual Interview Axial Code Table (ACT). The ACT is the primary documentation for all utterances that illustrate the range of meaning of each affinity for each respondent.

The structure of the interview is designed to make this step very easy. The meaning of each affinity is explored with each respondent according to a standard (but flexible) protocol and the respondent's descriptions are transcribed line-by-line. The researcher examines the particular section of the interview transcript that addresses the affinity and looks for phrases or statements that define and provide examples of a specific affinity. These examples may be symbolic or metaphorical statements concerning the affinity, clearly stated descriptions of how the affinity becomes manifest in the experience of the respondent, or proximate descriptions of other affinities in the context of the one being addressed.

Quotes relating to a specific affinity are cut and pasted into the third column of the ACT, along with the line(s) of the transcript that are the source of the axial quote. There will usually be multiple axial quotes for any given affinity; each quote represented by another row in the ACT. Once all interviews are coded, the data from the interviews are summarized to create a composite of the individuals' experience with the phenomenon.

Sample Individual Interview Axial Code Table			
Affinity	Transcript Line	Axial Quotation	Researcher Notes
1.			
2.			
3.			
4.			
5.			
6.			

Combined Interview Axial Code Table

Once all interviews have been coded, the data from the interviews are summarized to create a combined Axial Code Table that represents a composite of the individuals' experience with the affinities of phenomenon. Axial data are transferred from each Individual Interview Axial Code Table to a Combined Interview Axial Code Table. By combining all interviews into one table, the researcher creates a database for the entire set of respondents containing all Axial Codes for

all affinities, with each code containing a link or a reference to the transcript and line numbers that produced the code. This table is very similar to the one used to record axial codes for an individual interview except that it also contains a link to the transcript that produced the code.

Composite Affinity Descriptions: The Affinity Write-up

The IQA Affinity Write-up is a composite story of the group. The researcher is tasked with organizing the multiple interviews so that they tell the story of the group as a whole. The researcher seeks to identify what “does the affinity mean?”, “what are the sub components?” and “what is the range of meaning?” for each affinity. Since the group is the best source of describing their experience, why not describe it purely in their own words? Much like the process used to identify affinities with a focus group, quotes can be organized into common themes using a “Dump, Clump, Name, Organize” procedure. With all the quotes for a particular affinity contained in a Combined Interview Axial Code Table for that affinity, the meaning of the affinity can begin to take shape. IQA takes the stand that the researcher should have little voice in the Results / Analysis. The role of the researcher is to organize the data so that it tells the groups story and is interesting to the reader. The researcher is tasked with combining, naming and organizing the quotes. The researcher introduces the affinity and sub affinities to the reader but avoids any temptation to add the researchers voice and interpretation to the story. For this reason, only a few introductory sentences are written in the voice of the researcher while the bulk of the Affinity Write-up is in the words of the group.

Once all interview have been organized and coded and system have been build all that is left to do is present the material in a manner that is informative, organized and fun to read. Since we are all prolific writers, this step is easy and need no further explanation. But for that rare researcher who looks at a blank piece of paper and has no idea where to start, IQA once again take a systematic approach to writing up the study. Knowing the data that IQA produces makes the writing process much less difficult. The transparent nature of the IQA process allows the researcher to present the results in an open forum and allows the reader to examine the data along with the researcher. Presenting the data in an open manner allows the reader to draw their own conclusions about the study. Most researchers work so hard and become so involved in the study that they cannot resist drawing conclusions and making predictions. But all too often researchers blur the line between presenting the data and interpretation. A systematic approach can help to avoid the pitfalls by drawing distinct lines between describing the data and interpreting the data.

In the “Dump” phase, each Combined Interview ACT is cut into strips of paper representing a single individual quote. The research in effect creates cards for a sub-affinity analysis. In the “Clump” phase, the researcher next examines all quotes for that affinity. Similar themed quotes are clumped together in piles. In the “Name” phase, the researcher examines each theme and gives it a meaningful name. These themes are called sub-affinities. They represent the overall range of meaning of the affinity. They often describe the affinity in either a range of timbre or tone or as a list of attributes that describe the affinity. In the “Organize” phase, multiple quotes for each sub-affinity are then woven together to develop a composite quote. The researcher organizes the quotes so that they tell a story about each sub-affinity.

While the resulting paragraphs of quotes are made up of quotes taken from individuals, the result is an affinity description that represents a composite story of the group as a whole. While this process may seem strange to qualitative researchers who are used to seeing quotations being treated in traditional ways, the process is not unusual. It is very common for a researcher to interview an individual many times over a period of time about the same subject. Researchers often compile quotes on a topic and report the results so that the story reads as a continuous piece.

Theoretical Coding

The purpose of IQA is to draw a picture of the system (Systems Influence Diagram or SID) that represents the perceptual terrain or the mind-map of an individual or group with respect to a phenomenon represented by the issue statement. The SID is a picture drawn using a set of rules for rationalization on a summary of the theoretical codes called an Interrelationship Diagram (IRD) produced by the respondents. Theoretical Coding refers to ascertaining the perceived cause and effect relationships (influences) among all the affinities in a system. In the interview setting, this is accomplished by facilitating a systematic process of building hypotheses linking each possible pair of affinities.

All possible direct links between the affinities are investigated by developing hypotheses grounded in the data. IQA provides participants with a formal protocol to determine whether or not there is a direct influence between every possible pair of affinities in the system. If so, the respondent then determines the directionality of influence. The goal is to identify the underlying (and generally hidden) structure of the group mind map, which is summarized in a SID.

Theoretical Coding can serve two purposes, first to present an individual SID for each participant and second to produce a composite SID representative of the group as a whole. To produce a SID for an individual the researcher examines the transcripts for Theoretical Codes. Theoretical Codes are recorded in an Individual Interview Theoretical Code Table (TCT), which captures both directionality of relationships as well as descriptive explanations of how the relationships work in the respondent's words. In preparation for drawing an individual system the relationships are transferred to an Affinity Relationship Table (ART), which was described in the interviews section. The relationships are then processed through another protocol called an Interrelationship Diagram (IRD). Next, a Cluttered SID, one that contains all relationships identified by the respondent, is produced. The Uncluttered SID is the final version of the system in which redundant links are removed. Each of these protocols will be explained in detail to follow.

In order to build a composite system representative of the group as a whole a few extra steps are performed. For each interview an Individual Interview Theoretical Code Table (TCT) is produced. As each interview is processed an accounting of each affinity pair relationships is tallied in a Theoretical Code Frequency Table. The Theoretical Code Frequency Table captures the frequency of "votes" for each affinity pair for all members of the group. IQA uses a Pareto Protocol, which is used operationally to achieve consensus and analytically to create a statistical group composite of the group. The Pareto Protocol identifies which relationships the researcher should use to build the Composite SID. The relationships to be used are recorded in an ART.

Following the same steps as an Individual System an IRD, Cluttered SID and Uncluttered SID is produced. The Composite SID process is described in detail following the process for the individual SID.

The SID Assignments Protocol

The purpose of the SID Assignments Protocol is to allow the researcher to analyze the entire set of relationships identified in the ART and determine the basic flow of the system from Driver to Outcome. The SID Assignments Protocol contains four tables, The Affinity Relationship Table (ART), The Interrelationship Diagram (IRD), The Sorted IRD and the Tentative SID Assignments Table. The SID Assignments Protocol is completed by examining the number relationships a particular affinity influences and is influenced by. In other words,

the researcher examines the number of OUT arrows (Drivers) and IN arrows (Outcomes) of each affinity. The difference between OUT and IN arrows determines if the affinity is a relative driver or outcome. Affinities are then sorted from drivers to outcomes. The results of the sorted IRD are examined to determine the tentative order of the affinities in preparation for drawing the SID. Below is the blank SID Assignments Protocol.

Affinity Name	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Possible Relationships
A → B
A ← B
A x B (No Relationship)

Affinity Relationship Table			
Affinity Pair Relationship			Affinity Pair Relationship
1	2		3 5
1	3		3 6
1	4		3 7
1	5		3 8
1	6		4 5
1	7		4 6
1	8		4 7
2	3		4 8
2	4		5 6
2	5		5 7
2	6		5 8
2	7		6 7
2	8		6 8
3	4		7 8

IRD											
	1	2	3	4	5	6	7	8	OUT	IN	Δ
1											
2											
3											
4											
5											
6											
7											
8											
Total											

Count the number of up arrows ($\uparrow$) or *Outs*

Count the number of left arrows ($\leftarrow$) or *Ins*

Subtract the number of *Ins* from the *Outs* to determine the (Δ) *Deltas*

$$\Delta = \text{Out} - \text{In}$$

Error Check

Add both the *Outs* column and the *Ins* column. The numbers should be equal.

Add the Δ column. The value should be zero.

Paste the contents of the IRD into the table below and sort by Δ

IRD – Sorted in Descending Order of Δ											
	1	2	3	4	5	6	7	8	OUT	IN	Δ
1											
2											
3											
4											
5											
6											
7											
8											

Directions

Copy and paste the sorted affinity number column over the affinity numbers in the Tentative SID Assignments Table.

Examine the Sorted IRD Table for the following possibilities and change the Tentative SID order to reflect the rule.

Zero IN, Zero OUT Rule: If there is a **Zero In** within the system it must be moved up to a pure primary driver. If there is a **Zero Out** it must be moved down to a pure primary outcome.

Equal Delta Flip Rule: If there is a tied delta value, examine the relationship pair and identify which is the driver. The driver of the pair goes first in the table. Make changes to the SID order in the table below.

Tentative SID Assignments	
1	
2	
3	
4	
5	
6	
7	
8	

Primary Driver
Secondary Driver
Neutral
Secondary Outcome
Primary Outcome

The Cluttered SID

The first version of the SID contains each link present in the IRD and is referred to as the Cluttered SID. The system is saturated with links, a term appropriated from organic chemistry. Just as saturated hydrocarbons are composed of carbon atoms linked to as many hydrogen atoms as their structure will allow, the cluttered SID contains all of the links identified by participants in the protocol leading to the IRD.

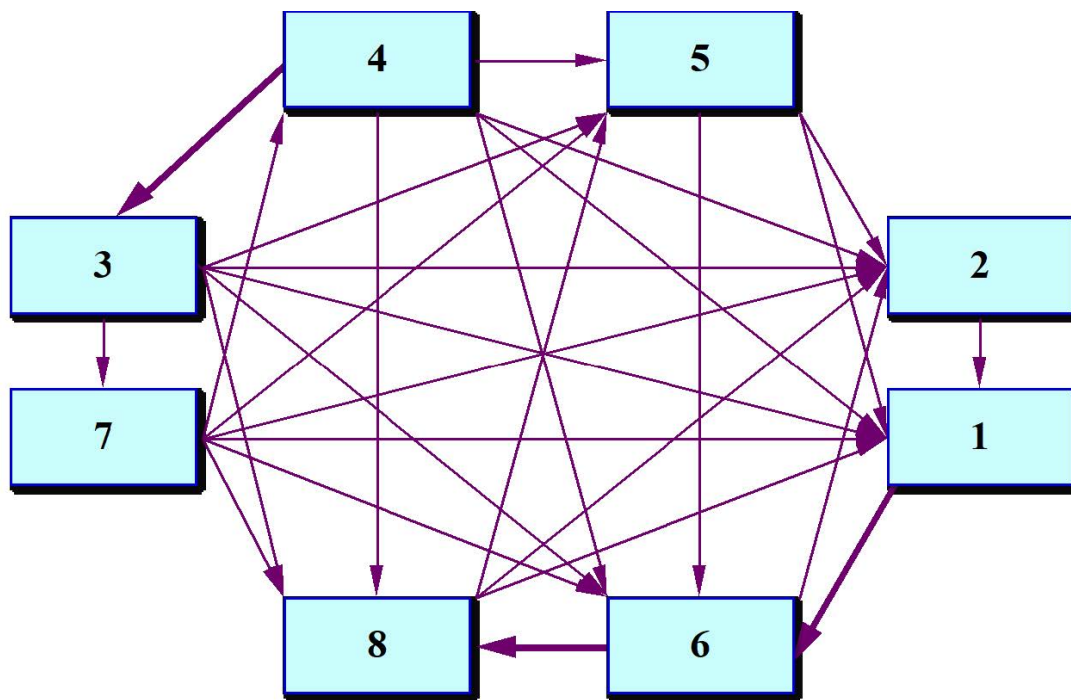


Figure A4: Sample Cluttered SID

The Uncluttered SID

The Cluttered SID deserves its name. The problem with saturation is that a Cluttered SID, while being comprehensive and rich, can be very difficult to interpret, even for a modest number of affinities that are highly interlocked or embedded within the system. While the Cluttered SID is extremely rich in descriptive capability, it serves better as an *objet d'art* (depending on one's sense of aesthetics) than as an interpretive device. In other words, many systems have so many links that the explanatory power of the system becomes bogged down in the details of the relationships. Comprehensiveness and richness are certainly objectives of the SID; on the other hand, so is parsimony. A way to reconcile the richness–parsimony dialectic is to produce an Uncluttered SID, one that has redundant links removed. Redundant links are those between two affinities in which, even if removed, a path from the driver to the outcome can be achieved through an intermediary affinity. Redundant links can be thought of as the paths of least

resistance. The Uncluttered SID has all redundant links removed. The Uncluttered SID is the simplest possible representation consistent with all the relationships contained in the IRD.

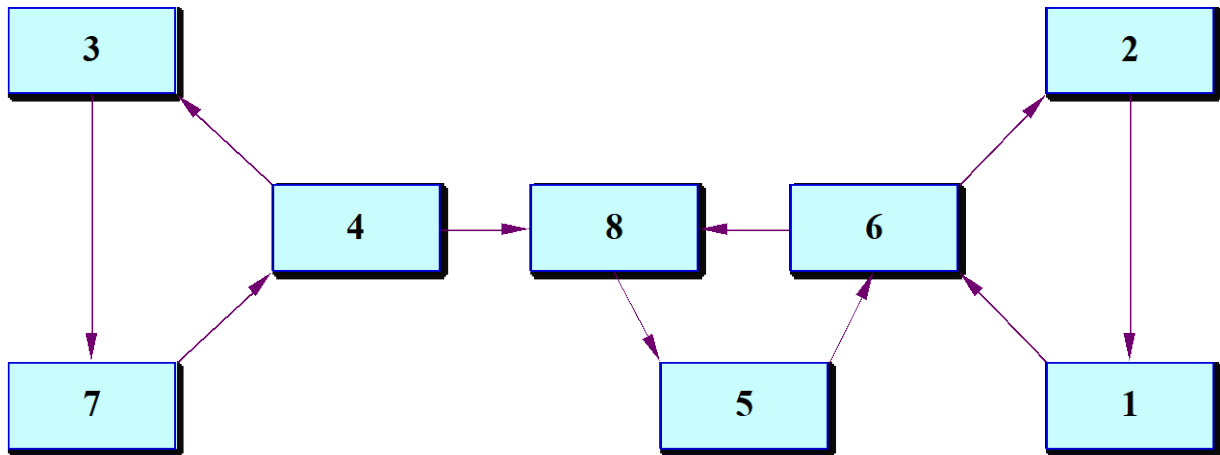


Figure A5: Sample Uncluttered SID

The Composite SID

Using the same procedure used to develop an Individual SID, a Composite ART, IRD and SID can be created for the group. Once all interviews have been coded, the data from the interviews are summarized to create a combined SID that represents a composite of the individual's experience with the phenomenon. A count of each theoretical code is entered into the Combined Interview Theoretical Code Frequency Table. Because individual respondents may have defined relationships differently, and may in fact disagree about the direction of a relationship, IQA provides a protocol (the Pareto Protocol with MinMax Criterion) to constructing a composite SID from individual interview SIDs.

The Pareto Principle

Selecting a protocol for representing the consensus or the “preponderance” of the group's analysis of relationships is similarly independent of the level of detail or group organization. A reasonably rigorous and powerful technique for achieving and documenting the degree of consensus in a group is the Pareto Principle, named after the 19th century economist Wilfredo Pareto (1843-1913), and popularized among management and systems theorists by Joseph Juran (1988). Pareto wrote of the “trivial many and the significant few” in his analysis of productivity and economics. The principle has been used in quality management to help focus priorities by providing an easy-to-remember rule of thumb. Put in systems terms, the Pareto Principle states that something like *20% of the variables in a system will account for 80% of the total variation in outcomes* (such as productivity or profit). Other (sometimes tongue-in-cheek) incarnations of the Pareto Principle are:

- ◆ Addressing the most troublesome 20% of your problem will solve 80% of it.
- ◆ In any organization, 20% of the personnel will cause 80% of your headaches.
- ◆ 80 percent of all work that is completed is really the result of 20 percent effort.
- ◆ 20 percent of all potential solutions will solve 80 percent of the problem

Whether the split is 20/80 or 70/30 or some other ratio depends upon the nature of the system, but the essential utility of the Pareto Principle is this: a minority of the relationships in any system will account for a majority of the variation within the system. Depending upon the variation of theoretical coding used, it is quite likely that there will be some disagreement

among either individuals or subgroups about the nature of a given relationship. IQA uses the Pareto rule of thumb operationally to achieve consensus and analytically to create a statistical group composite.

The Pareto Protocol provides an efficient and, to group members who find themselves in an initial stage of disagreement, satisfying method for achieving consensus. A Pareto Composite System requires an exact count of each relationship code but has distinct benefits in that it takes into account close votes and identifies conflicting relationships not addressed in a simple vote. The frequency of each relationship is determined and recorded on a spreadsheet by tallying all of the relationships identified by each member of the group and recorded in an ART. The total number of “votes” (we omit the quotes from now on) for each relationship is calculated, and the relationships are sorted out in descending order. Cumulative percentages are then calculated for each relationship, which is to say a Pareto Protocol is constructed. The cumulative frequencies are used for two purposes:

- ◆ To determine the optimal number of relationships to comprise the composite system. “Optimal” is used in the sense that the researcher’s goal is to use the fewest number of relationships (for parsimony’s sake) that represents the greatest amount of variation (for the sake of comprehensiveness and richness). Relationships that attract a very low percentage of votes are generally excluded from the group composite.
- ◆ To help resolve ambiguous relationships, which are relationships that attract votes in either direction.

IQA Report (Interpretation / Implications)

The last phase of an IQA or any study is that of Interpretation / Implications, which in the case of an IQA study proceeds not only from the descriptions of the affinities produced by the respondents, but from two other sources as well: (1) the respondents’ judgments of the cause-and-effect relationships among the affinities and the system these judgments create; and (2) comparison of mind-maps, both at an aggregate level (focus group SID, composite SIDs from interviews for different constituencies) and at an individual level (examining individual mind-maps or the variability within a constituency).

In the Interpretation / Implications chapter, the researcher begins to make comparisons and draw conclusion based on the data. Composite systems for each constituency are compared to each other. Individual respondent systems are compared to show typical or atypical variation from that of the group. The researcher draws inferences based on theoretical perspective. Finally, the researcher can make predictions based on the model or suggest interventions one may attempt to change the outcome of the system.

Comparisons

Comparisons can be made at two levels: A qualitative analogue to the statistical concept of variation is possible by comparing individual mind-maps to each other and to the composite; and a qualitative analogue to post hoc group comparisons is possible by comparing the composite mind-maps of different constituencies. These two interpretive protocols are the logical results of the dialectical nature of IQA research, as revealed in the following:

1. Individuals are unique in meaningful ways. Individual perspectives or voices are important and should not get lost in our attempt to find patterns. However ...
2. Patterns or communalities in perceptions do exist within constituencies. These patterns or abstractions are useful for both theoretical and practical purposes. Furthermore...

3. Comparison is the primary method of interpretation, both from the participant's point of view and from the investigator's. IQA focus group and interview protocols are designed to encourage constant comparison by the participants; and for the investigator, the following comparisons are provided by following the IQA research design process:
 - o Among individuals within and across constituencies (comparing individual mind-maps to each other and to composites)
 - o Comparisons among constituencies (comparing composites)

Scenarios Examined

A mind-map or SID, whether it is the map of a group's or an individual's perception, is a system, and systems are made to be "exercised." Systems may be exercised (or scenarios may be cast) in three basic ways:

1. The researcher may ask the model to "predict," based on its internal logic, the ultimate state of the outcome affinities given known states of its antecedent affinities.
2. The researcher may do the opposite, which is to ask what antecedents might, by the logic of the system, lead to a particular state of its outcomes.
3. The researcher may ask what might be the effect of extra-systemic influences or those forces not named or accounted for in the system.

In other words, IQA methodology allows for a representation of both individual and group realities, comparisons of which allow the researcher to ask the two great interpretive questions: "What is ...?" and "What if ...?"

Interpretation & Implications: Chapter 5 Guidelines

The implications section provides a forum for the researcher to analyze and interpret the data as well as draw conclusions based on the data. How one chooses to make comparisons is a matter of choice. IQA chooses to analyze the composite system first. Next, IQA chooses to identify opposing individual experience and compare them. Finally, IQA chooses to treat the system as a theoretical model that can be applied to other situations and make predictions based on the model.

- ◆ Composite System (Describe the System)
 - o Brief tour through the system.
 - o Describe overall placement of the affinities in the systems. Describe links, building the model from left to right. Give examples (you can put theoretical quotes directly onto your SID) of each link.
 - o Highlight and *name* any feedback loops. Give an example, in the manner just above, of how each loop works; in particular, how it can *implode* or go negative. Describe way(s) to escape from a negative feedback loop.
 - o Zoom out by substituting the feedback loop names for the affinities comprising the loops, working from right (outcomes) to left (drivers).
 - o *Exercise the model* by presuming some given states or conditions of the drivers and then examining what the expected results would be (prospective scenario). Then, do the reverse (retrospective scenario) by assuming some states or conditions of the outcomes,

and then examine the model to see what conditions or states of the drivers could have produced these outcomes.

- ◆ Valence (Describe the Valence)
 - Describe the overall valence (hot to cold, positive to negative, bad to good, pleasant to unpleasant, lots of variation, little variation) of each affinity. Analyze the interviews based on valence and quotes.
- ◆ Predictions and Interventions
 - Describe how the system can be used outside the context of the study.
 - Describe how each Constituency (from Power/Proximity analysis in Research Design) could use the system
- ◆ Practical Implications (Provide Solutions to Identified Problems)
- ◆ Revisit the Literature
 - Identify other theories that resemble or support the researcher's findings

Additional Interpretative Techniques

- ◆ Compare Groups (Compare System of Different Constituencies or Comparison Groups)
 - Compare and contrast drivers to outcomes, loops and the overall placement of the affinities in the systems.
 - Compare and contrast the timbre of the individual's affinities to that of the composite.
- ◆ Individual System (Describe an Atypical and Typical Individual)
 - Discuss each affinity in the context of an individual interview.
 - Discuss each relationship in the context of an individual interview.
 - Describe links, building the model from left to right. Give examples (you can put theoretical quotes directly onto your SID) of each link.
 - Describe overall placement of the affinities in the systems.
 - Highlight and *name* any feedback loops. Give an example, in the manner just above, of how each loop works; in particular, how it can *implode* or go negative. Describe way(s) to escape from a negative feedback loop.
 - Zoom out by substituting the feedback loop names for the affinities comprising the loops, working from right (outcomes) to left (drivers).
 - *Exercise the model* by describing the individual's path through the system.

- Describe the overall valence (hot to cold, positive to negative, bad to good, pleasant to unpleasant, lots of variation, little variation) of each affinity. Analyze the individual interview based on valence and quotes.
- In the individual SID, identify the affinity, which, if its valence becomes negative enough, will likely lead to a decision to abandon the doctoral program. (This step is particular to our case study.)