Exploring patient perceptions of pharmacy practice in community pharmacies

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ABSTRACT

A large proportion of community pharmacists is passionate about their profession and would like to extend their services to their communities. In order to achieve this goal the public needs to be aware of, and understand, the services that community pharmacy offers. In return it is necessary for the profession to have a clear understanding of the knowledge that patients have of those services that community pharmacists can offer.

The changing role of the pharmacist from that of a compounder and dispenser to one of pharmacotherapy manager, is examined. The scope of pharmacy practice now incorporates patient centred care. Without moving the patient from the centre of the scene more and more pressure is mounting for more effective medicine regimes. Medicine optimisation and evidence-based pharmaceutical care as an emerging concept to achieve higher quality and more effective pharmaceutical care are explored.

This study set out to assess how patients perceive pharmacy practice and pharmaceutical care in the community environment and further, to evaluate patients' awareness and understanding of pharmacy practice, pharmacy services and pharmaceutical care.

The study was done in the Ring group of pharmacies and focussed on pharmacy patrons of these pharmacies which are located in Gauteng and the North West region of South Africa. A qualitative approach was considered to be best to assess patient knowledge. A close-ended format questionnaire was used as it eliminated the possibility of respondents marking the right answers by chance. Convenience sampling was used as a non-probability sampling technique. The study population consisted of clients, both male and female frequenting the Ring pharmacies. The patrons of these pharmacies were invited to complete a self-administered survey and answered questionnaires were accepted until a count of one hundred was reached.

The results of this study have shown that many patients are ignorant with the notion of pharmaceutical care. They are not aware of the pharmacy services available and therefore are not demanding these services.

The researcher urges the pharmacy profession to educate their patients about the services that they are willing and able to provide. Better informed patients with regards to services rendered can result in better patient health outcomes.

Key words: community pharmacy, pharmaceutical care, patient perceptions, pharmacy practice, clinical practice, patient care, value driver, service industry, community pharmacist and retail chemist.

This work is dedicated to my wife, Amanda, enduring hours of loneliness during my study, and to my four children, Jean, Elizna, Anell and Sune who never doubted me, supported and encouraged me, and cared enough for me to make this dream possible.

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LIST OF ABBREVIATIONS

Acronym	Term
ACCP	American College of Clinical Pharmacy
ADR	Adverse Drug Reaction
APhA	American Pharmacist Association
ASHP	American Society of Hospital Pharmacists
CPD	Continued Professional Development
EBM	Evidence-based Medicine
e.g.	exempli gratia (for example)
etc.	et cetera
FIP	International Pharmaceutical Federation
GPP	Good Pharmacy Practice
HIV	Human Immunodeficiency Virus
i.e.	id est (that is)
LSM	Living Standards Measure
MS	Microsoft
MeMO	Medication Monitoring and Optimization
NHI	National Health Insurance
OTC	Over the Counter
PC	Pharmaceutical care
PAHO	Pan American Health Organization
PCNE	Pharmaceutical Care Network Europe

PHC	Pharmaceutical Health Care
PIT	Patient Initiated Therapy
PSSA	Pharmaceutical Society of South Africa
SAPC	South African Pharmacy Council
SPSS	Statistical Package for the Social Sciences Version 24, Release 23.0.0
WHO	World Health Organization

CHAPTER 1: NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

Customer satisfaction is the perception that a product or service has met or exceeded the customer's expectations and is a critical requirement for successful marketing. Successful companies all over the world cultivate long-term relationships by ensuring sustained customer satisfaction (Lamb *et al*., 2015:26).

Placing the customer or patient in the centre of an organisation's operations has always been central to marketing philosophy, but organisations have to understand the two-factor model of customer satisfaction. This model indicates that the identical factors that add to satisfaction may not necessarily contribute to dissatisfaction. One group of factors is called the hygiene factors, which add to customer dissatisfaction. The other group is called satisfiers and are factors that add to customer satisfaction. The absence (or poor performance) of some services may lead to dissatisfaction, although the high performance of those same services may add a very small amount of customer satisfaction. The literature indicates that many organisations lose up to fifty percent of their customers in five years. Offering superior value increases the chance of customers and patients becoming loyal patrons, ensuring the company's long-term survival and growth (Lamb *et al*., 2015:9).

Over time customers develop more sophisticated tastes and have higher expectations, having experienced superior service in developed countries. Environmental differences exist between countries with regards to their economic progress and cultural value system. The various components of service quality are therefore emphasised differently (Malhotra *et al*., 2004:256). Consumers are less willing to accept poor service. The increase in choices in the retail industry have raised expectations about health care choices. Consumers have similar expectations for customer service, which include making life easier for patients and offering value. Customer needs is one of the factors driving health care delivery beyond the traditional setting (AHA, 2017:11).

The ease with which patients have access to information through the internet is continuously raising the bar with regards to what the patient regards as hygiene factors or satisfiers. The dispensing tasks expected to be performed by the community pharmacist during the processing of a prescription, i.e. interpretation and evaluation of the prescription, checking the patient medication record, preparation and labelling of the prescribed

medicine, and the provision of information and instructions to the patient with the appropriate counselling (SAPC, 2010:59), will in the near future become a hygiene factor. Hygiene factors mutually constitute a minimum level of satisfaction and failure to meet that minimum will cause customers and patients to become dissatisfied.

Extraordinary services, like pharmaceutical care, with regards to addressing the medicine-related needs of patients, is regarded by patrons as a satisfier. Pharmaceutical care is that element of pharmacy practice that involves the one on one interaction between pharmacist and patient to satisfy the patient's pharmacotherapeutic needs. Pharmaceutical care is the series of actions done by a pharmacist when the patient's medicine-related needs are evaluated, when potential or actual medicine-related problems are determined when other health care professionals are consulted to plan, implement and supervise a pharmacotherapeutic plan that will resolve or prevent a problem (APhA, 2017:1).

Pharmacy practice has evolved considerably in South Africa over the last century. The function of the pharmacist in South Africa was only defined in the early 19th century, which enabled pharmacists, then known as Chemists and Druggists, to organise themselves into a professional group distinct from other medical professions (Ryan, 1986:1).

The role of the pharmacist, which most probably existed since 2600BC, has changed from mainly individual prescription compounding to dispensing in the 1940s, to clinical practice and pharmaceutical care in the 1970s. According to one of the earliest definitions pharmaceutical care is the process of identifying, resolving and preventing medicine-related problems to enhance patients' quality of life ultimately (Strand *et al.,* 1991:547).

A quarter of a century after Hepler and Strand (1990:533) published their renowned definition of pharmaceutical care**,** uncertainty remained about what the term includes and how it should be differentiated from other terms. Pharmaceutical care has since been redefined, and currently, several definitions exist, depending on the author or organisation. The PCNE definition of pharmaceutical care is "the pharmacist's contribution to the care of individuals to optimise medicines' use and improve health outcomes." (Allemann *et al*., 2014:544).

Good pharmacy practice (GPP) is defined as "the practice of pharmacy that responds to the needs of the people who use the pharmacists' services to provide optimal, evidence-based care" and is organised around four key roles for pharmacists:

- to prepare, obtain, store, secure, distribute, administer, dispense and dispose of medical products;
- to provide effective medication therapy management;
- to maintain and improve professional performance, and
- to contribute to improve the effectiveness of the health care system and public health (FIP, 2017a:1).

Pharmacy practice encompasses the development of the professional role of the pharmacist and entails patient care, disease management, clinical involvement, drug abuse prevention, PIT, pharmacotherapy, the rendering of screening tests and pharmaceutical care (FIP, 2017a:1).

The rendering of screening services have been part of pharmacy practice for many years. Although not all pharmacies have these, or some of these tests available it is widely promoted by some pharmacies and just as widely accepted by a large number of pharmacy patrons (Dugan, 2006:21; Malangu, 2014:226). In South Africa, the level of patient awareness of these services supplied by community pharmacies is to a large extent unknown.

Pharmaceutical care is incorporated into the scope of practice of the pharmacist (SAPC, 2015a:173). Regulation 18 of the Pharmacy Act (53 of 1974) obligates the pharmacist to "determine patient compliance with the therapy and follow up to ensure that the patient's medicine related needs are being met" (SA, 1974). Although completion of these tasks incorporated in pharmaceutical care is preferable, all these tasks are not necessarily executed. Therefore, pharmaceutical care can occur on different levels (Franic *et al*., 2008:191).

1.2 CONTRIBUTION OF THE STUDY

The rapid development of new drugs, increased availability and a higher incidence of self-medication lead to a meaningfully higher number of adverse drug reactions (Van Mil *et al.*, 2004:303). These influences lead to an amplified total cost of health care, which includes the cost of the medicine, the length of hospitalisation and all directly provided health care goods and services. By monitoring prescriptions and offering information to patients and medical personnel, the pharmacist has a vital role to play in reducing the number of

Adverse Drug Reactions (ADRs). Pharmacists perform numerous activities that enhance the delivery of health care by saving money for third-party payers.

The monitoring and control of chronic medication are one of the functions of pharmaceutical care. Community pharmacy provides a capable basis for monitoring and enhancing treatment adherence. With the appropriate software, such as the MeMO program, pharmaceutical care was proven to be cost-effective, and the importance of therapy adherence was underlined. The program was shown to be an effective and well-organised method to increase the adherence of patients to chronic medication for osteoporosis, cholesterol and asthma and was well received by patients (Van Boven *et al*., 2014:786).

1.3 RATIONALE FOR THE STUDY

The National Health Insurance Bill is set to be tabled before the cabinet in November 2017. This Act, when accepted, will dramatically change health care in South Africa. The bill will also provide many opportunities for role-players to showcase services, solutions and innovative products and equipment. The author suggests that the vast majority of state patients, and a fair number of private patients, do not receive the desired level of pharmaceutical care, mostly because of their ignorance with regards to the availability of this service.

This study aims to evaluate the awareness of the community pharmacy patron with regards to pharmaceutical care.

1.4 PROBLEM STATEMENT

The level of pharmaceutical care has been measured from a pharmacist's perspective for the last twenty years. Literature evaluating the patients' understanding of pharmaceutical care is limited (Nichols-English, 2002:31).

The notion of pharmaceutical care has been welcomed by pharmacists and incorporated into the pharmacy profession (PSSA, 2017:7). It is the author's opinion that it has not been clearly established to what level it has translated into practice from the patient's perspective. The South African pharmacy profession does not know what the understanding of the patient is regarding the pharmacist's role in pharmaceutical care.

In South Africa, the standard of health care is raised continually, and the rights of the consumer come more and more to the fore (SAICA, 2016:1). The standard of health care can be increased by determining patient compliance with therapy and the following up to

ensure that the patient's medicine related needs are being met. The author is of the opinion that, because the pharmacy profession does not have a clear understanding of the perception of the patient with regards to pharmaceutical care, it makes it difficult to communicate effectively with the patient. The practical scenario is that patients will only demand services like pharmaceutical care if they are familiar with the array of services available to them and if they are informed regarding the role of the pharmacist in their health care. More informed patients can result in better patient outcomes (Koonce *et al.*, 2007:77).

The purpose of this study is to determine what the level of understanding of the average South African is of the term pharmaceutical care entails. Studies have been done on the need for pharmaceutical care in South Africa (Bronkhorst *et al*., 2014:41) and with a current, severe shortage of 12000 pharmacists in South Africa (Ndenze, 2017), some studies even suggest the use of pharmacy assistants for this purpose in some environments (Fatti *et al*., 2016:107). Much effort has been put into describing the role of pharmacy in pharmacist-delivered patient care and how consumers will use technology to improve patient care (Du Toit, 2016:62). Further, the Community Pharmacist Sector of the PSSA ("CPS") recently decided that community pharmacies need to prioritise a deliberate shift of focus away from dispensing and supply of medicine only towards those services for which a pharmacist may charge a fee (Du Toit & Le Roux, 2015:45), but no studies are available in the literature as to the awareness and understanding of the South African public with regards to pharmaceutical care.

1.5 RESEARCH QUESTIONS

The primary research question is: How do patients perceive pharmacy practice and pharmaceutical care in the community pharmacy environment?

The secondary research question is: What is the extent of the community pharmacy patron's understanding of pharmaceutical care in the community pharmacy setting in Ring pharmacies?

1.6 OBJECTIVES OF THE STUDY

1.6.1 General objective

There are a large proportion of community pharmacists that are passionate about their profession and who would like to extend their services and the level of their expertise to the community in which they operate. The needs of the community can only be satisfied if

they (the patients) are aware, and understand, the options that community pharmacy offers. In return, it is essential for the profession to have a clear understanding of the knowledge and awareness that patients have of the services that they (the pharmacist) can offer. Resources are wasted if the supplier of services (community pharmacy) does not know on what level to communicate with the potential user (patient) with regards to these services. Only once there is a clear understanding in the market of the needs, wants and offers available can these needs be properly satisfied.

Thus, the general objective of this research is to evaluate how patients perceive pharmacy practice and pharmaceutical care in the community environment.

1.6.2 Specific objectives

The specific objective of this research is to evaluate patients' awareness and understanding of pharmacy practice, pharmacy services and pharmaceutical care.

1.7 SCOPE OF THE STUDY

More than half of the Ring shareholder pharmacies are situated in Pretoria to which the researcher has gained access. No permission was needed from a central body as all Ring pharmacies are individually owned. The participation of these pharmacies was done under the supervision of the owner-pharmacists.

1.7.1 Population

The population of the study exists of pharmacy patrons of these Ring pharmacies which are located in Gauteng and the North West region of South Africa. Respondents provided information about their awareness and understanding of pharmacy practice, pharmacy services and pharmaceutical care by voluntary completion of a questionnaire. . A total of 189 individuals accepted the invitation and questionnaires were distributed to them. Completed questionnaires were accepted until a count of one hundred (100) was reached, resulting in a completion rate of 52,9%.

1.8 RESEARCH METHODOLOGY

This research consists of two phases: a literature review and an empirical study.

1.8.1 Literature review

A literature review was done to describe, summarise, evaluate and clarify the literature related to the topic of discussion. This review was followed by empirical research. This study was a cross-sectional study as the study needed to determine the prevailing

characteristics in a population at a given point in time. The attitude, knowledge and perceptions of the population needed to be measured over a short period, preferably one month.

Constructs that were investigated were community pharmacy, pharmaceutical care, patient perceptions, pharmacy practice, clinical practice, patient care, value driver, service industry, community pharmacist and retail chemist.

1.8.2 Empirical study

The study will follow a qualitative research approach with questionnaires as measuring instrument. This study is based on a previous study by Franic *et al*. (2008). This study aims to use the same questionnaires and methods as the study of Franic *et al*., but on a different population with different stakeholders.

A questionnaire consisting of both open-ended and closed-ended questions were used. The questionnaire consisted of four sections. Section A provided for the creation of a personal and confidential code. In section B the biographical information was accumulated, i.e. age, sex, cultural background, highest qualification and monthly income.

Section C, in which the behavioural information was gathered, consisted of closed-ended questions only. The closed-ended questions eliminated the possibility of respondents marking the right answers by chance. Section D, contained mostly open-ended questions, which was instrumental in acquiring awareness information.

The focus is placed on the analysis of the data obtained from the questionnaires distributed and subsequently collected, during the research. The purpose of the questionnaires were to determine the awareness and understanding of pharmacy practice, pharmacy services and pharmaceutical care from the view of the pharmacy patron.

1.9 LIMITATIONS OF THE STUDY

A few limitations have been identified with regards to the study. The primary limitation is the generalisation of the study results, as the study is done with a convenience sample. The simplified definition of pharmaceutical care used in the qualitative analysis could overstate the level of pharmacy practice provided. Because pharmacists could select any participant of their choice the study can be viewed as the best-case scenario with regards

to the perceptions of the respondents. The possibility exist that the pharmacists invited participants with specific skills, e.g. those more fluent in a language, those who appear to be more intelligent or those who are more informed with regards to pharmacy practice. Pharmacy patrons who indicated that they would prefer to receive and answer the questionnaire by e-mail were given the opportunity to do so. The possibility therefore exists that not all respondents were patrons of Ring pharmacies only. Not all the allocated questionnaires were retrieved or completed and might therefore affect the validity of the data.

1.10 LAYOUT OF THE STUDY

CHAPTER 1: Nature and scope of the study

This chapter sets the context of the research topic. It contains the problem statement, objectives of the study, methods used in the research and the relevant limitations of the study. It also addresses the rationale and the importance of the study.

CHAPTER 2: Literature review and theoretical foundation

This chapter describes the levels of pharmacy practice and provides a theoretical background for the term “pharmaceutical care”. The literature review will describe pharmaceutical care and will give an overview of the terms “medicine optimisation” and “evidence-based pharmaceutical care”. It will explain the benefits that pharmaceutical care can bring along to a community as well as to a service provider.

CHAPTER 3: Research design and data analysis

This chapter describes the research approach, research setting and strategy. The roles of the participants and the researcher are discussed. The survey instrument, sampling and data analysis are examined.

CHAPTER 4: Results and interpretation

Standardised questionnaires will be distributed among patrons of Ring pharmacies in Gauteng and the North West region of South Africa. These questionnaires will aim to determine the level of understanding of pharmacy practice, pharmacy services and pharmaceutical care.

The results of the empirical research will be reported and discussed.

CHAPTER 5: Discussion, recommendations and conclusion

A summary of the research results will be given. Conclusions will be discussed, and recommendations will be made regarding the way forward.

1.11 CHAPTER SUMMARY

In this chapter, an introduction to the study was given. This included the problem statement, the objectives of the study, the research methodology, the limitations of the study and the division of the chapters of the study. The literature review will follow in chapter 2.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FOUNDATION

2.1 INTRODUCTION

The objective of this chapter is to examine the literature relating to the economic and clinical significance of the community pharmacist in South Africa's health care industry. The current role of the community pharmacist is described as well as what most community pharmacists aspire to be.

Literature consulted regarding the pharmaceutical industry and the country's health care industry was gathered from pharmaceutical journals and publications. Most of the literature consisted of media reports on the players in the pharmaceutical industry.

Pharmacy entered the 1900s executing a role of the apothecary, which was the compounding, preparing and selling of medicinal drugs. Throughout this period the function of the pharmacist was to acquire, formulate and evaluate medicinal products. Pharmacists were tasked to ensure that the medication was of a good standard and to provide sound advice to customers with regards the medicine that they prescribed (Hepler & Strand, 1990:533; Aronson, 2004:231).

Later in the century, the pharmaceutical industry started to manufacture pharmaceuticals. The selection of medicine to be prescribed was passed on to the physician, with the pharmacist left with the role of dispensing pre-manufactured medicinal products (Hepler & Strand, 1990:534).

In the third quarter of the century, the emphasis progressed to new pharmaceutical services which brought the pharmacist closer to the patient. However, pharmacists continued to focus on the supply of medicines to the end user rather than on the individual patients themselves.

At the end of the century, many pharmacists have traversed into the patient-care environment. Pharmacists came to understand that their first responsibility lies with the patient and that it was their duty to see to it that, seeing there was an indication for every item on a prescription, every medicine used was the most effective and the safest possible, and that patient compliance was aspired to, including providing relief from the symptoms and stresses associated with serious or life-limiting illnesses (Pruskowski *et al.*, 2017:6).

2.2 THE ORIGINS OF PHARMACY AND PHARMACISTS

The first evidence of pharmaceutical knowledge was found in the Shandar cave in northern Iraq. Similarly, cave artists painted the image of a shaman or medicine man on the walls of the cave Les Trois Freres in Arriege, France, depicted wearing the skin of a deer topped by a rack of antlers. This shaman is suggested to be the very first pharmacist. The term “shaman” derives from the Siberian language meaning “one who knows”. The role of the learned and trusted healer of the shaman evolved over time into the modern pharmacist and other health care professionals (Zebroski, 2016:9).

The origin of the word “pharmacist” can be traced back to the ancient Egyptian word *ph-ar-maki* which meant “granter of security”. A more likely explanation is that it originated from the Greek word “pharmakon”, which, ironically, means either remedy or poison. Over time pharmacists were known as shamans, priests, healers, diviners, physicians, apothecaries, pharmaceutists, chemists and druggists (Zebroski, 2016:2).

Civilisation originated 9,000 years ago in the area between the Euphrates - and the Tigris rivers in Iraq, the area historically known as Mesopotamia. The first pharmacy in the world was established in Bagdad in 774AD (Jafar, 2000:273).

The oldest recognised prescription dates back to 2400 BC and originates from the ancient Sumerian city of Nippur in Iraq. The University of Pennsylvania is in possession of all the clay tablets that were discovered at this site which includes the world's oldest pharmacopoeia (Kramer, 1963:93).

2.3 HEALTH CARE DEFINED

Health care includes all those resources that human beings use to care for or to cure ill people. Health care also includes the actions to prevent people to become ill. The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being” and not merely “the absence of disease and infirmity” (Dolan & Olsen, 2002:1).

A cure is concerned with the advancement of the health of people. A cure may either fully restore or improve their health or constrain the extent to which their quality of life declines. Care, on the other hand, improves health and seeks to provide dignity to sick people (Dolan & Olsen, 2002:1).

“Prevention” comprises those resources necessary to decrease the probability of disease or premature death (Dolan & Olsen, 2002:1).

Webster’s Online Dictionary describes the word “medicine” as something that treats, prevents or eases the symptoms of disease (Parker, 2006).

A “medication” is a substance taken to reduce symptoms or cure a disease or medical condition. Medicine is broadly speaking divided into two categories, i.e. “over-the-counter” (OTC) medicines, which are available in pharmacies without a doctor’s prescription, and “prescription-only” medicine, which has to be prescribed by a medical doctor. Most OTC medicines are considered to be safe as the average person will not be seriously negatively affected by not taking it according to the instructions (Parker, 2006).

Act 101 of 1965 and The World Health Organization (WHO) defines a drug or pharmaceutical preparation (a medicine) as: “any substance or mixture of substances manufactured, sold, offered for sale, or represented for use in . the diagnosis, treatment, mitigation, or prevention of disease, abnormal physical state or the symptoms thereof in man or animal; {and for use in}, restoring, correcting or modifying organic functions in man or animal” (NEDLAC, 2000: 4).

In the literature “medicine” and “medication” have the same meaning (Cambridge Advanced Learner’s Dictionary & Thesaurus, 2017).

Primary care includes health promotion, disease prevention, health maintenance, counselling, patient education, diagnosis and treatment of acute and chronic illnesses (Lehigh Valley Health Network, 2017).

2.4 SCOPE OF PRACTICE

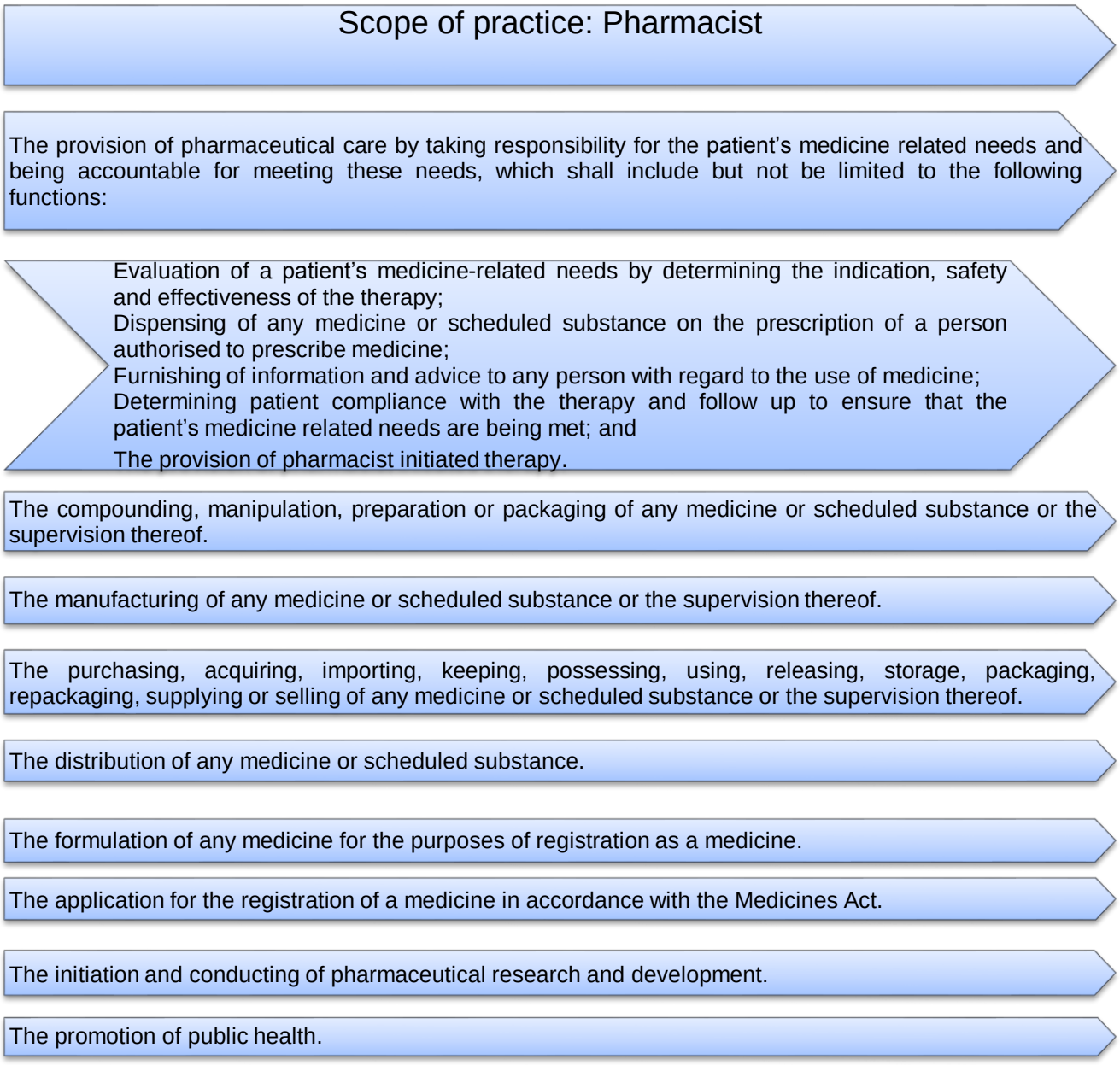


Figure 1: Services or acts that are regarded as being services or acts pertaining to the scope of practice of a pharmacist (SAPC, 2010:3)

The scope of practice describes the procedures, actions, and processes that a healthcare practitioner is permitted to undertake in keeping with the terms of their professional license.To fulfil the needs relating to the pharmaceutical care of the people of South Africa, the scope of practice of the pharmacy profession has been prescribed in terms of Section 35A of the Pharmacy Act, 53 of 1974 as well as the Medicines and Related Substances Act, 101 of 1965 (SAPC, 2010:3). Figure 1 illustrates the services or acts that are regarded

as being services or acts pertaining to the scope of practice of a pharmacist, based on (SAPC, 2010:3).

In the community pharmacy setting this would typically involve the determining of what medicine would be appropriate for an illness, the dispensing and packaging of such medicine and the furnishing of the appropriate advice on the use of such medicine. Part of this process would be the acquiring, storage and distribution of such medicine.

2.5 POLYPHARMACY

The term polypharmacy first appeared in the medical literature more than a hundred and fifty years ago (Duerden *et al*., 2013:1) and was originally created to refer to specific matters associated with multiple drug utilisation and excessive drug consumption (Dale & Friend,1959:1015). The term has been used with different connotations and definitions such as “unnecessary drug use” and “medication use without indication” (De las Cuevas & Sanz, 2004:18).

The elderly is more susceptible to ADRs because of age-related change and pathology, cardiovascular disease, psychological disorders and different pharmacokinetics and pharmacodynamics (Johnell & Klarin, 2007:911). Medicine-related harm among the elderly is one of the most challenging public health issues worldwide (Patterson *et al*., 2012).

Polypharmacy is more prevalent in the elderly because of several contributing factors. Lower patient compliance and adherence due to numerous and multi-faceted medicine combinations are some of the causes that interfere with their therapy, aggravate certain conditions and sometimes even increase the need for medication (Williams *et al.*, 2008:132; MacLaughlin *et al.,* 2005:231).

2.6 PATRONS OF PHARMACY – CUSTOMER OR PATIENT?

Community pharmacies are regarded as one of the most everyday sources of health services all over the world. In South Africa, community pharmacies have been providing selected primary health care services to patients who are willing and able to pay for these services. These services include amongst other things screening tests, family planning and emergency care for minor ailments (Dugan, 2006:21; Sello *et al*., 2012). Regrettably, these services do not live up to the expectations of patients that want to make use of these services.

Legislation and regulations governing the practice of pharmacy require that a pharmacist, before dispensing a prescription, exercise professional judgment by considering potential adverse reactions and whether the prescription may have an incorrect duration or dosage. The language utilised in the Pharmacy Act, 53 of 1974 (SA, 1974) as well as the South African Pharmacy Council publication Good Pharmacy Practice, indicates that the pharmacist is a health care provider and that the receiver of prescription medicine is a patient. Good Pharmacy Practice uses the term “patient profile”. The requirement that the pharmacist maintains and review the profile, the duty to provide counselling, and the importance of maintaining the confidentiality of all information compiled backs the conclusion that the pharmacy records are medical records of a patient. A pharmacist is thus not merely an arbitrator between a supplier and a consumer. Pharmacists are obliged to use their professional training and judgment to provide health care to patients (SAPC, 2010:19).

Patients do not easily forgive poor service, and the bar keeps being raised higher because of the continually improving service quality offered by competitors. Health care providers need to endeavour to do better than just to provide world-class customer care. Providers need to satisfy the needs of their patients through differentiated experiences that create superior, sustainable loyalty. According to Leng (2015:1), the key to such an approach is to treat patients as customers, except that patients are, for various reasons, not customers.

One definition of a “customer” is a person that obtains a service or product from another person or entity in exchange for money. Customers can buy either goods or services (Leng, 2015:1) or in the case of community pharmacy, both.

Leng (2015:1) puts forward the following reasons why patients differ from customers:

- **Patients are not on holiday.** They are not in the mindset that they are waiting in a queue in the pharmacy to have a good time. They are unwilling customers, stressed and would rather not be requiring the service they are requesting. Patients only have grudge purchases;
- **Patients have not chosen to buy the service.** In the majority of cases, patients have been forced to seek the service;
- **Patients are not paying directly for the service.** Usually, a third party does;

- **Patients are not buying a product from which they can demand a positive outcome.** The outcome of the service may still be illness or even death, but that still doesn't mean that the service provided was sub-standard;
- **The patient is not always right.** A patient cannot demand specific medicines to be prescribed. What they should demand is good care, but realising that care might mean denying patients what patients think they need;
- **Patient satisfaction does not always correlate with the quality of the product.** A patient who is given antibiotics for a cold may be very pleased but has, in fact, received inferior care.

The factors that make customer service good is subject to an individual's beliefs and expectations. The purchase of health care is a grudge purchase at best. Customers do not want to be in that position and wish they do not have to buy the service with the consequence that health care professionals are exposed to a mixture of temperament, values and expectations. The patient is a human being, not a customer and needs to be approached with humanity, not customer service (Leng, 2015:1).

2.7 LEVELS OF PHARMACY PRACTICE

The levels of pharmacy as practised today have a strong relationship with the history and development of the profession as explained below.

2.7.1 Individual prescription compounding or apothecary (up to early 1900s)

Apothecary is one of many terms for a medical professional who prepares and dispenses medicinal products to patients and other health care providers. In early modern England, women were expected to learn the basic techniques needed to make home remedies. Apothecaries, however, provided advice and more complex preparations to patients (Woolf, 2009:20).

Modern medicine began when the compounding pharmacist separated the active ingredients, like morphine, and used it instead of the crude drug. Serturner in Germany isolated morphine in 1806 (Lyons, 2017).

The modern age of pharmacy compounding began in the 19th century with the separation of various mixtures from coal tar to manufacture synthetic dyes. From this one natural product came the earliest antibacterial sulpha drugs and phenolic compounds made famous by Joseph Lister (Fisher, 1977).

The word “pharmacist” was used for the first time in South African law with the introduction of the Medical, Dental and Pharmacy Bill in the Senate in 1917 (Ryan, 1986:71). Pharmacists continued to compound most prescriptions until the early 1950s when the majority of dispensed drugs came directly from the large pharmaceutical companies.

2.7.2 Dispensing (1940 to 1950)

During the 1940s pharmacy evolved into the dispensing era (Shah *et al.*, 2013:7). Dispensing includes the preparation of a medicine for a patient, making sure of the pharmaceutical and therapeutic suitability of the medicine for its intended use, and taking the necessary steps to ensure appropriate use. Pharmacists need to take reasonable steps to ensure that the dispensing of a medicine is in accordance with the prescription. Pharmacists are to ensure that it is consistent with the safety of the person named in the prescription (SAPC, 2010:59). Pharmacists must exercise their independent judgment to ensure the medicine is safe and suitable for the patient. The prescriber is to be contacted if any doubts exist that it does not conform to the requirements of the prescriber. To be compliant the dose, frequency, route of administration, duration of treatment, other medicines prescribed to the patients, the patient’s illness and medication history must be taken into account (SAPC, 2010:73).

2.7.2.1 Phases of the dispensing process

The dispensing process is divided into three phases, based on (SAPC, 2010:59) as can be seen in Figure 2.

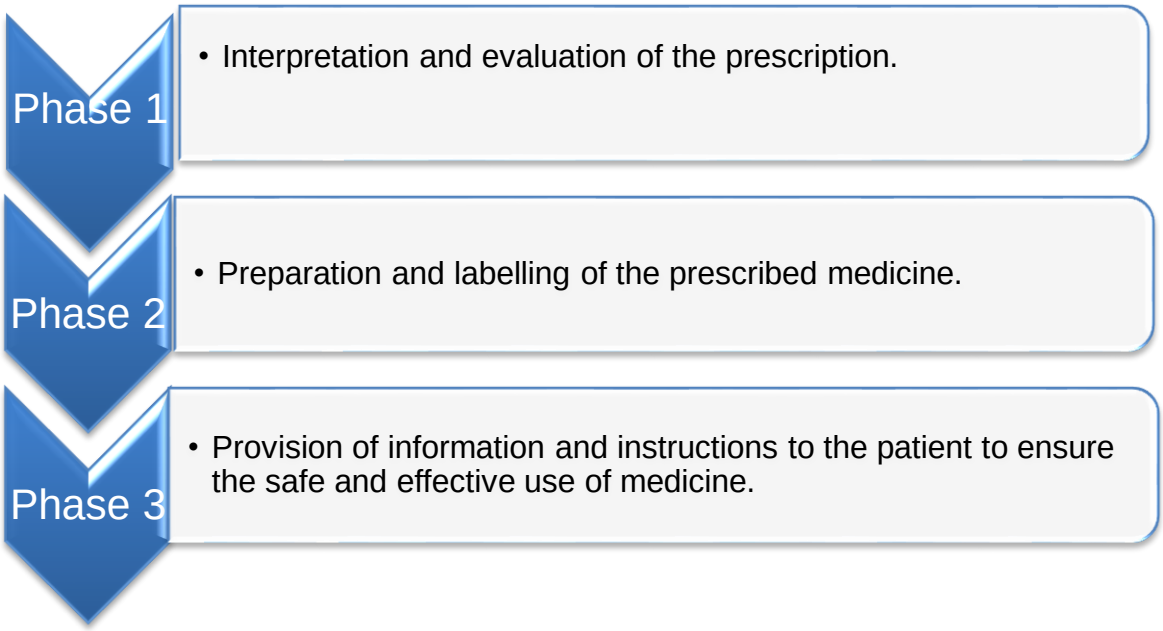
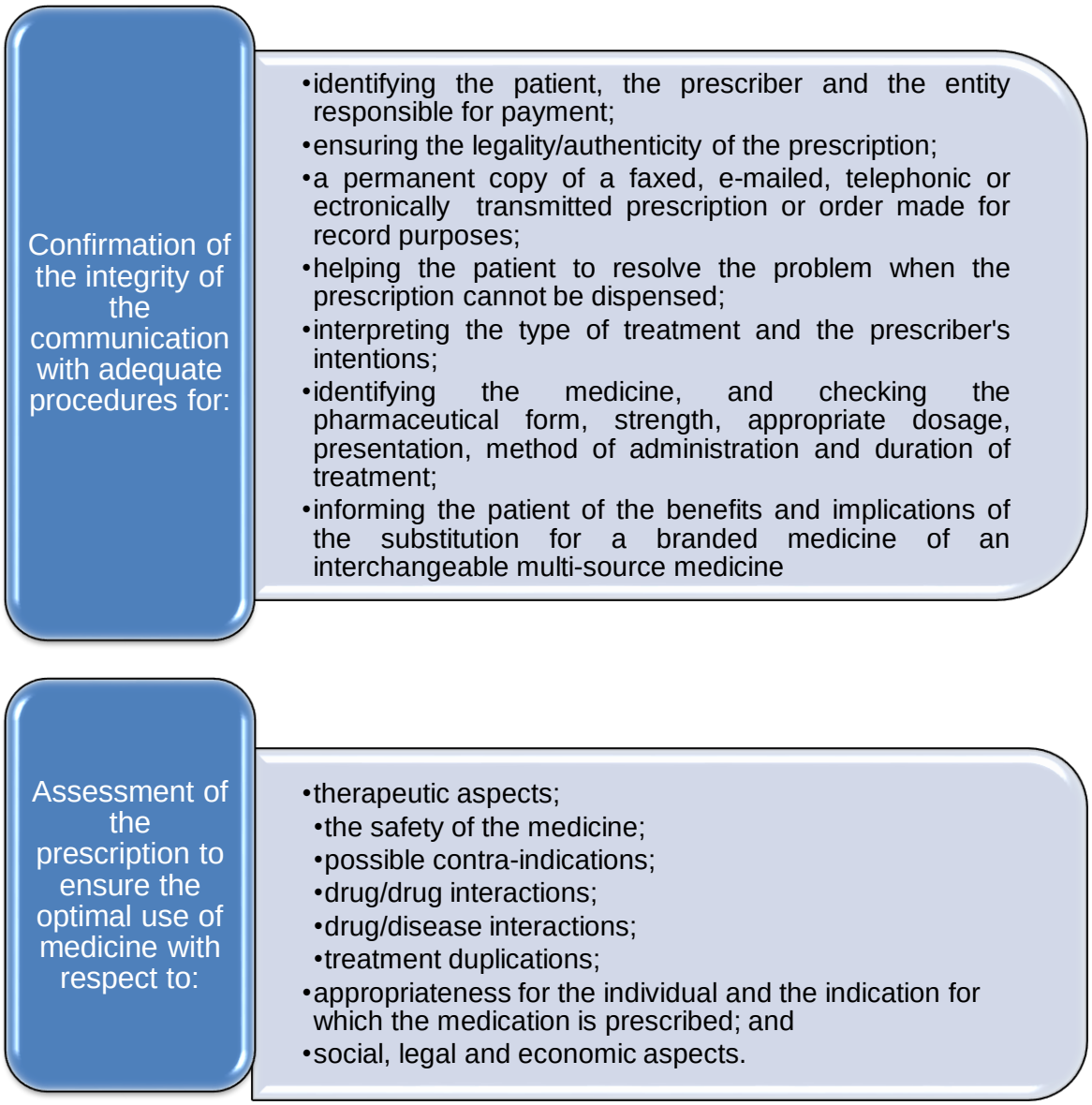


Figure 2: Phases of the dispensing process (SAPC, 210:59)

The three phases may be performed by a pharmacist or pharmacist intern under the direct personal supervision of a pharmacist. The person who is responsible for the dispensing of a prescription must ensure that all three phases of the dispensing process have been performed by an appropriately authorised person (SAPC, 2010:59).

Figure 3, based on (SAPC, 2010:60) illustrates the minimum standards for the dispensing of a medicine of a scheduled substance on the prescription of an authorised prescriber with regards to phase 1. It is clear that it is the duty of the dispenser to interpret the instructions of the prescriber, to label the medicine prepared and to provide the necessary information applicable.



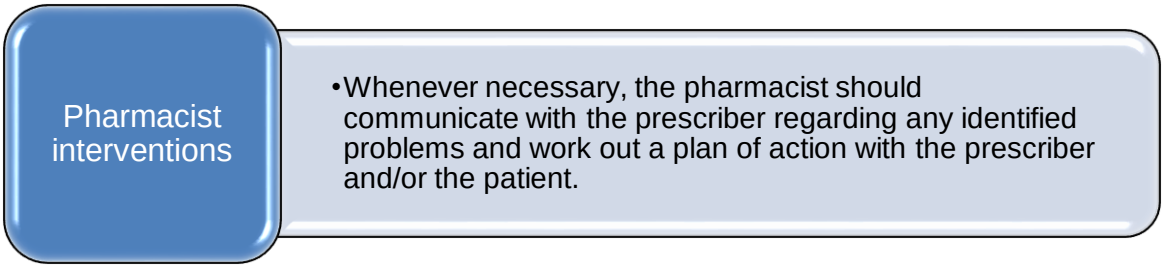


Figure 3: Minimum standards with regards to phase 1 (SAPC, 2010:60)

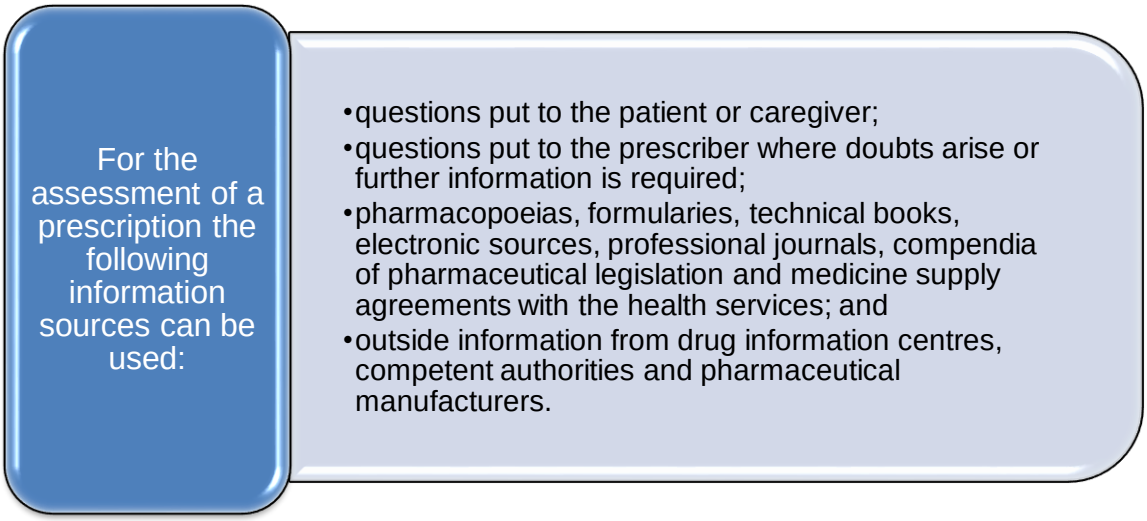


Figure 3: Minimum standards with regards to phase 1 (Continued)(SAPC 2010:60)

Figure 4, based on (SAPC, 2010:62), illustrates the minimum standards for the dispensing of a medicine of a scheduled substance on the prescription of an authorised prescriber with regards to phase 2.

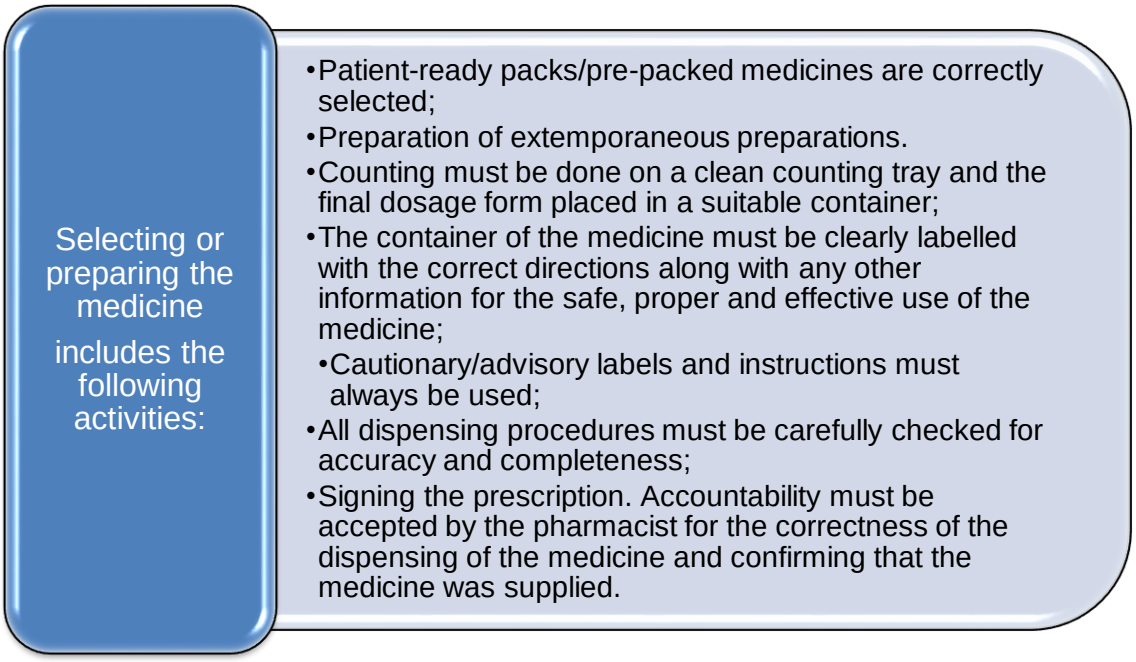


Figure 4: Minimum standards with regards to phase 2 (SAPC, 2010:62)

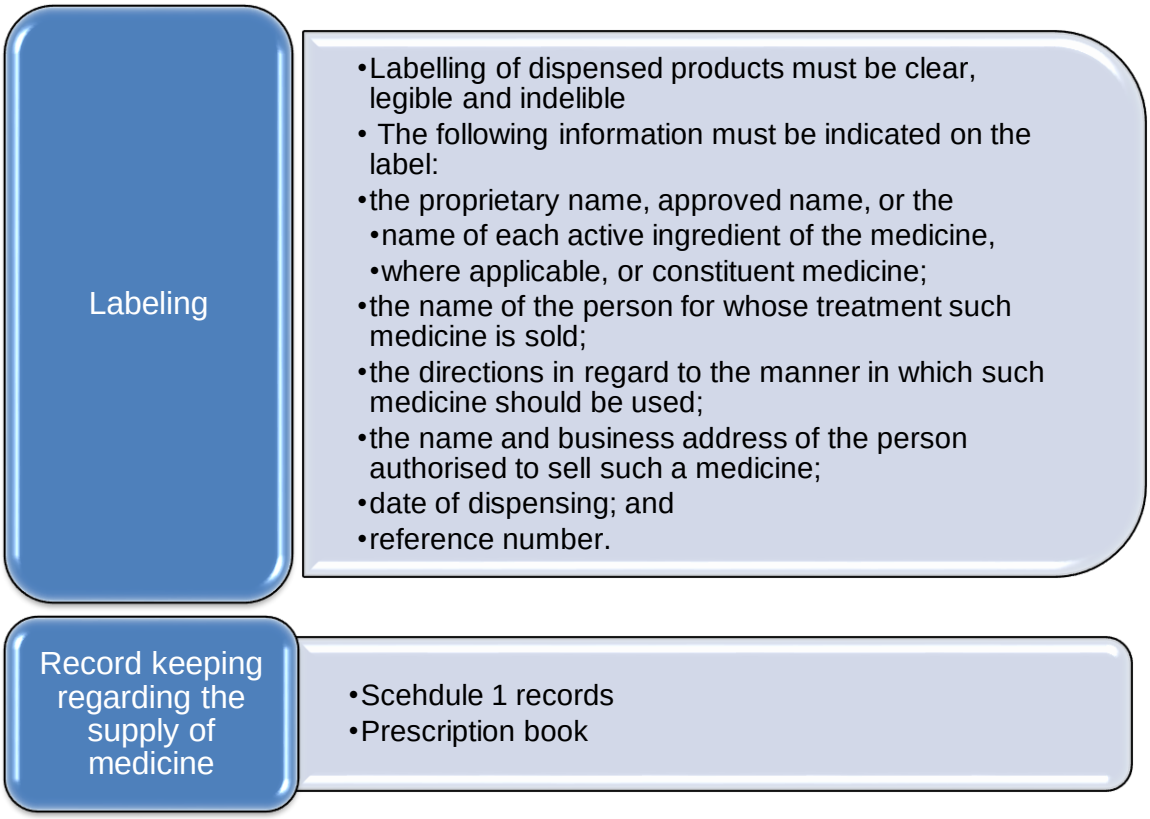


Figure 4: Minimum standards with regards to phase 2 (Continued)(SAPC, 2010:62)

Figure 5, based on (SAPC, 2010:64), illustrates the minimum standards for the dispensing of a medicine of a scheduled substance on the prescription of an authorised prescriber with regards to phase 3.

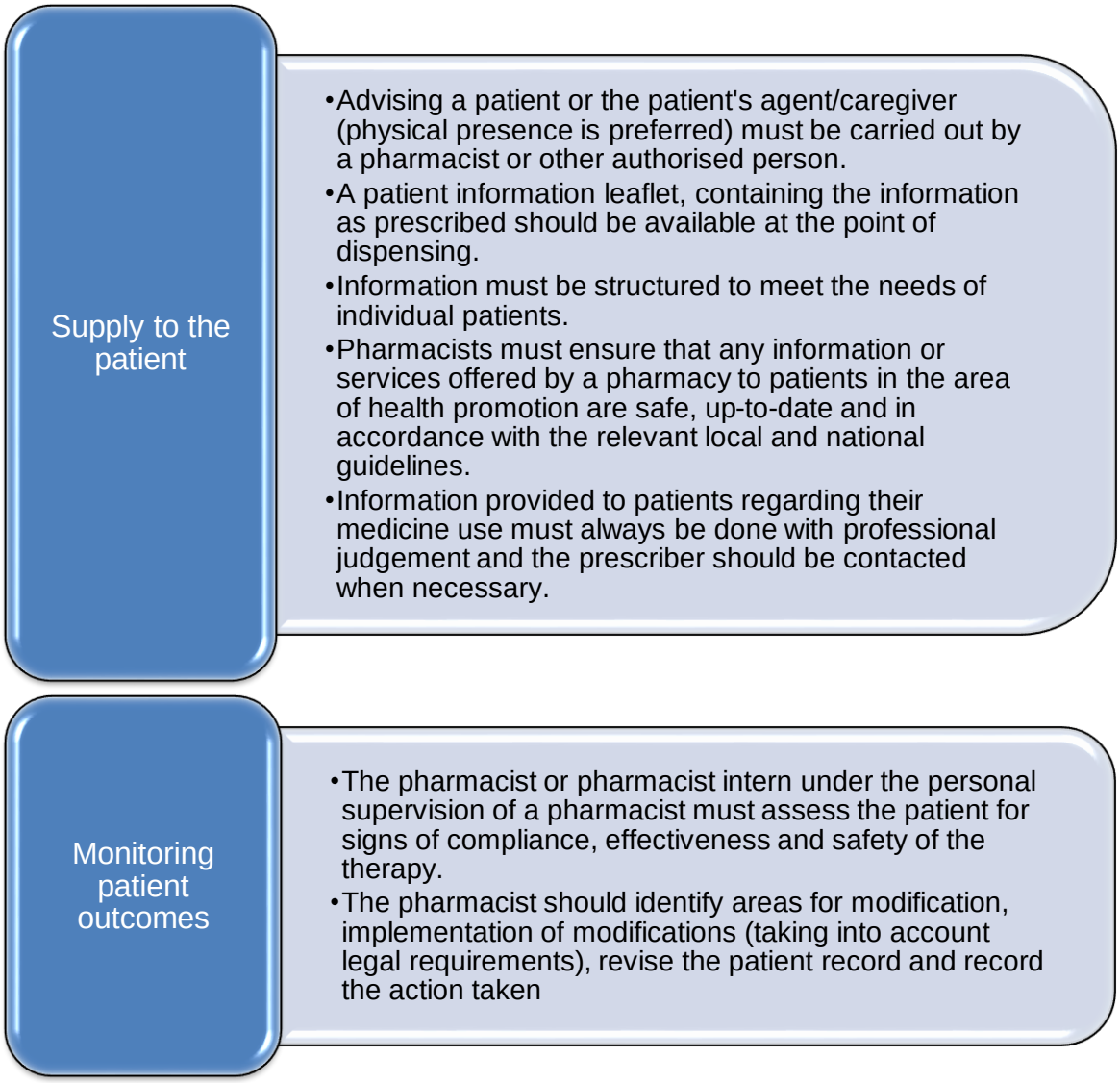


Figure 5: Minimum standards with regards to phase 3 (SAPC, 2010:64)

The minimum standards are the core the requirements, which are applicable to all community pharmacies, for the dispensing of medicines. In practice the pharmacist would consult the patient with regards to generic substitution, discuss possible drug interactions and explain the relevant contra-indications. If necessary, the pharmacist will contact the prescriber with regards to identified problems.

2.7.2.2 Overall responsibility and accountability

It is seen as the duty of every pharmacist to strive continuously to ensure that the highest standards are maintained in the manner in which pharmaceutical services are provided in South Africa. All practising pharmacists are compelled to ensure that the service they provide is of high quality and complies with GPP standards as published by the South African Pharmacy Council (SAPC, 2015b).

The underlying philosophy of the SAPC is that pharmacy is a dynamic, patient-orientated profession that is committed to fulfil the health care needs of South Africa and its people by being the custodian of medicine, the controller of medicine, the adviser on the use of medicine and the provider of clinical services such as screening tests, family planning and emergency care for minor ailments. It is the duty of every pharmacist to be an available provider of health care information, a provider of pharmaceutical care by taking responsibility for the therapeutic outcomes of pharmacotherapy and by being part of a profession committed to competency and professionalism.

To adhere to the standards set by profession, specific duties are set when a prescription is dispensed.

Figure 6, adapted from (SAPC, 2010:65), illustrates the duties and responsibility accompanying the dispensing of a medicine of a scheduled substance on the prescription of an authorised prescriber.

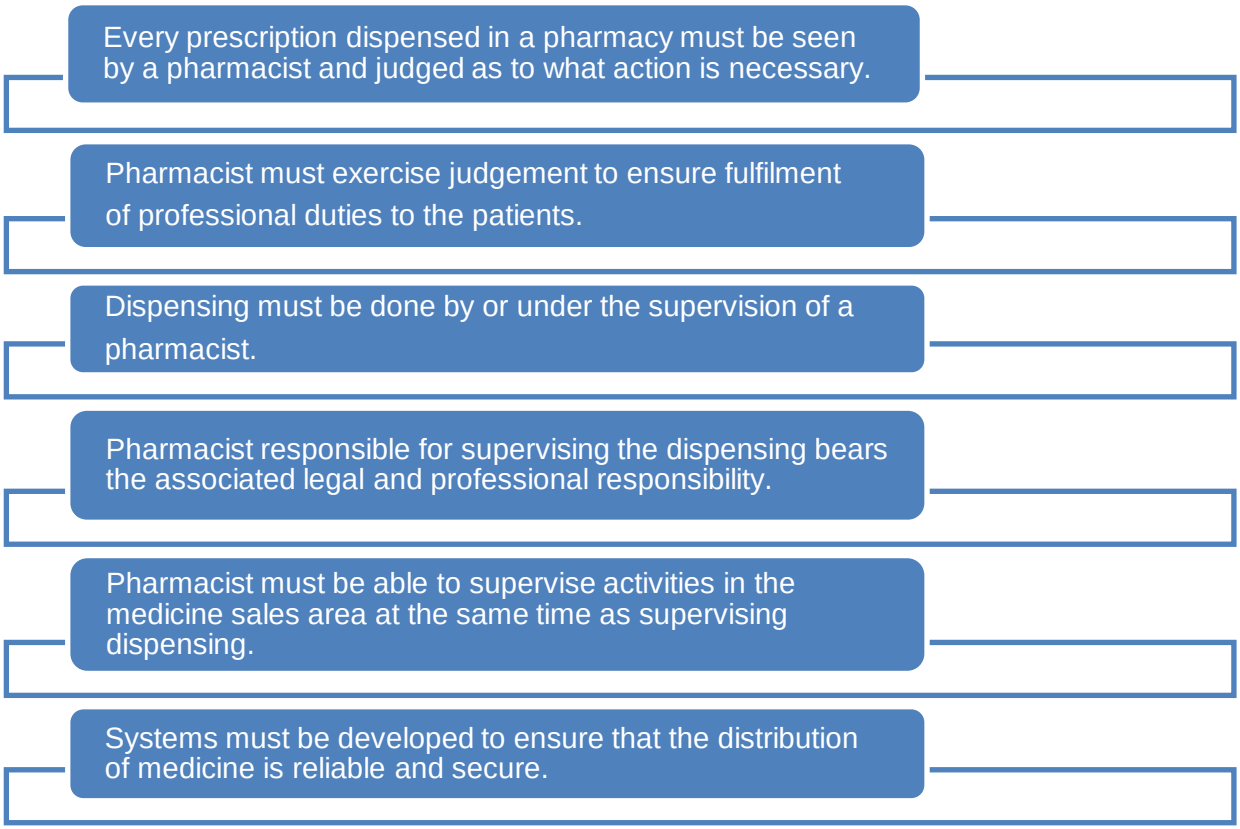


Figure 6: Duties and responsibilities of a pharmacist accompanying the dispensing of a medicine (SAPC, 2010:65)

2.7.3 Early clinical practice (1950 to 1970)

The term “clinical pharmacy” has been defined as those services provided by pharmacists to promote rational drug therapy safely and cost-effectively. Clinical pharmacists need to apply evidence-based therapeutic guidelines, emerging technology, and the relevant legal, ethical, social, cultural, economic, and professional principles to achieve the desired therapeutic outcomes. In accordance, clinical pharmacists accept responsibility and accountability for pharmacotherapy management. A clinical pharmacist researcher creates, disseminates, and apply new knowledge that contributes to improved health and quality of life (ACCP, 2008:816).

With the pharmaceutical industry making use of economies of scale a reduced requirement for pharmacist products started to develop as well as an awareness of drug-related morbidity and mortality. Technicians and automated dispensing systems gave pharmacists the opportunity to use their training in more clinical ways due to the progress that increased

the complexity of information in all areas such as formulation, pharmacokinetics and adverse drug effects (Parthasarathi *et al*., 2005:9).

Studies published up to 1987 suggested that clinical knowledge and pharmaceutical skills are sufficient enough to maximise the effectiveness of pharmaceutical services (Phillips *et al.*, 1987:1598). The concept of pharmaceutical care was born from the need for a suitable philosophy of practice and an organisational structure (Hepler & Strand, 1990:539).

2.7.4 Mature clinical practice (pharmaceutical care) (1970 onwards)

2.7.4.1 Defining pharmaceutical care

The term “pharmaceutical care” has developed considerably since one of the earliest studies done. Mikeal *et al*. (1975:568) defined pharmaceutical care as: “The provision of any personal health service involving the decision whether to use, the use and the evaluation of the use of drugs, including the range of services from prevention, diagnosis and treatment, to rehabilitation provided by physicians, dentists, nurses, pharmacists and other healthcare personnel. Pharmaceutical care includes the complexity of personal relationships and organised arrangements through which health services of a personal nature are made available to the population.”

From the above definition, it is clear that pharmaceutical care is not provided by one health care provider exclusively and is not described as the writing of a prescription for the consummation of a medicine.

The role of the pharmacist started to develop in the mid-1980s. It changed from a dispenser and seller of medicine to a more socially responsible health care provider, interacting with patients on the use of medicine. The importance of the relationship between pharmacist and patient was coming more and more to the fore (Hepler, 1987:369-385).

In 1990 Hepler and Strand argued that just a relationship between patient and pharmacist wat not sufficient for good medical care. Their definition of pharmaceutical care changed to “the responsible provision of drug therapy to achieve definite outcomes that improve a patient’s quality of life”. Pharmaceutical care is based on a relationship between the patient and the health care providers who have to accept responsibility to provide care to their patients. Pharmaceutical care involves the active participation of both the patient and the health care provider in pharmacotherapy decisions (Hepler & Strand, 1990: 539).

The philosophy and aims for the responsible delivery of pharmacotherapy to achieve definite outcomes to improve the quality of life of a patient have different undertones such as medicine management and review, and clinical pharmacy services (Roughead *et al*., 2002:132).

The American Society of Hospital Pharmacists defined pharmaceutical health care (PHC) in 1993 in more detail in a definition that acts as a mission statement as well: “The mission of the pharmacist is to provide pharmaceutical care which is the direct, responsible provision of medicine-related care for the purpose of achieving definite outcomes that improve a patient’s quality of life”. This statement on pharmaceutical care was reviewed in 1998 by the Council of Professional Affairs and the ASHP Board of Directors and was found to be still appropriate (ASHP, 1993:1720).

2.7.4.2 Elements of pharmaceutical care

The concept of pharmaceutical care includes a number of actions performed by pharmacists. All these actions should contribute to optimising patient outcomes. Dispensing medicines, however, is not considered per se to be an element of pharmaceutical care. Important activities of pharmaceutical care include counselling, medication reconciliation and medication review. These actions allow for drug-related problems to be discovered and enhance adherence and health promotion (PCNE, 2013:1).

The ASHP statement of pharmaceutical care was reviewed in 1998 by the Council of Professional Affairs and the ASHP Board of Directors and was found to be still appropriate (ASHP, 1998:2598).

Figure 7 illustrates the principal elements of pharmaceutical care as stipulated by the American Society of Hospital Pharmacists, based on (ASHP, 1993:1720):

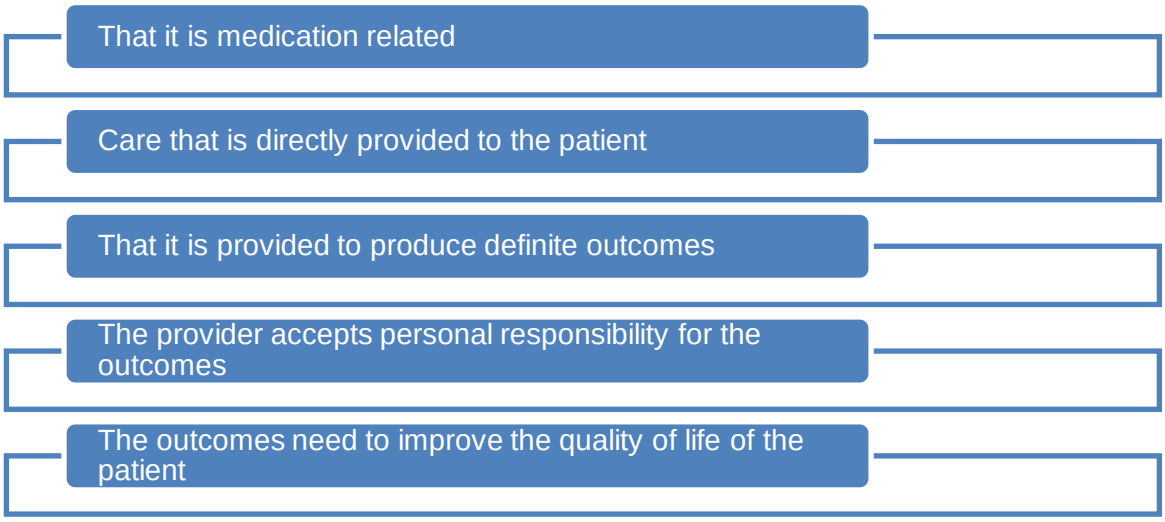


Figure 7: Principle elements of pharmaceutical care (ASHP, 1993:1720)

The elements of pharmaceutical care are:

- **Medication-related.** Pharmaceutical care is not all about the provision of medicine, but also the choices made by pharmacists about the use of medicine by individual patients. These choices also include the decision not to use medication therapy. The supervising, the provision of information that is medicine related, and the counselling of the individual patient is a core ingredient of pharmaceutical care;
- **Care.** Pharmaceutical care incorporates other disciplines of health professionals as each of these disciplines possess unique expertise and need to cooperate in the overall care of the patient. Cooperation between pharmacists, patients and the other health care professionals in designing, implementing and monitoring a therapeutic plan intended to produce outcomes that will improve the patient's quality of life is a necessity;
- **Outcomes**. The definite outcomes searched for is to improve the patient's quality of life and the cure of the patient's disease, the elimination or reduction of symptomatology, the arresting or slowing of the disease process and the preventing of a disease or symptomatology (ASHP, 1993:1720).

Pharmaceutical care involves three major functions with its goal to improve a patient's quality of life:

- identifying potential and actual medicine-related problems;
- resolving actual medicine-related problems; and

- preventing medicine-related problems (ASHP, 1993:1720).

The medicine-related problems, in turn, fall into the following categories:

- **Untreated indications**. Medicine therapy is not supplied although needed for the indication;
- **Improper medicine selection**. The patient is receiving the wrong medication for the specific indication;
- **Subtherapeutic dosage**. The patient is treated with a too low dosage to have the proper therapeutic effect;
- **Failure to receive medication**. The patient has a medical problem that is caused by the result of not receiving medication;
- **Overdosage**. The medical problem of the patient is treated with too much of the correct medicine and can lead to toxicity;
- **Adverse drug reactions**. The patients have a medical problem that is caused by an adverse drug reaction or adverse effect;
- **Drug interactions.** The patients develop a medical issue that is caused by a drug-drug, drug-food or drug-laboratory test interaction;
- **Medication use without indications.** Medicine is being taken for no medically acceptable indication (ASHP, 1993:1720).

Unfortunately, the intended outcome of pharmacotherapy is not always achievable. Patients may not conform to the medicine use programs or may have unpredictable biological responses, which again stresses the patient-pharmacist relationship. The responsibility to help achieve the desired outcomes lies with both the pharmacist and the patient. Patients need to be educated about behaviours that will provide the desired outcomes.

- **Quality of life**. The quality of life assessment of a patient should include both an objective and subjective evaluation and should involve patients setting quality of life goals for their therapy;
- **Responsibility**. The patients grant permission to the health care provider, and the provider accepts the responsibility to deliver competence, commitment and accountability to the patient (ASHP, 1993:1720).

An important element of pharmaceutical care is the commitment of the pharmacist to achieve the definite outcomes, and the acceptance of this responsibility is a significant advance in their professionalisation (ASHP, 1993:1720).

According to Allemann *et al*. (2014:544) a literature search in 2013 produced nineteen unique Pharmaceutical Health Care (PhC) definitions. A quarter of a century after Hepler and Strand announced their definition of Pharmaceutical Care (PC), confusion remained about what the term incorporates and how it should be differentiated from other terms. The Pharmaceutical Care Network Europe (PCNE) felt it necessary to rethink PhC and to answer the question: "What is Pharmaceutical Care in 2013". A literature search was conducted, and the consensus was on a "PCNE definition of Pharmaceutical Care" reading: "Pharmaceutical Care is the pharmacist's contribution to the care of individuals in order to optimise medicines use and improve health outcomes" (Allemann *et al*., 2014:544).

Pharmaceutical care includes the commitment to continuous, individual care by ensuring an ongoing patient care despite changes in working hours, weekends and holidays. This entails that pharmacists have to work as team members to be able to provide care when the principal pharmacist is not accessible. Care should be maintained when a patient is moved from one part of a health-care system to another, e.g. when a patient is discharged from hospital and becomes an outpatient (ASHP, 1993:1720).

The effective use of medicines needs to be prioritised between health care professionals to ensure that medicines are utilised efficiently and cost-effectively. More effective medicine use can help to:

- Deliver better care outcomes for patients;
- Reduce the incidence of avoidable hospital admissions; and
- Improve the efficiency and effectiveness of treatment.

Effective utilisation of medicines incorporates the support of patients with the correct quantity of information and guidance to take their medicines as prescribed. This includes prescriptions prescribed by doctors and other health care prescribers such as pharmacists and nurses. The improved adherence to correct medicine use will contribute to the improvement of health outcomes as well as reducing waste of prescribed medicines (Scottish government, 2017).

A systematic approach, which would involve access to medical records is required to deliver pharmaceutical care. The process facilitates the recognition of large numbers of pharmaceutical care issues, of which most could be resolved by a pharmacist (Krska *et al*., 2000:659).

An increasing number of reports demonstrate pharmacists are working closely with general practitioners to improve prescribing and to provide direct services to patients. Scottish general practitioners considered pharmacists' review of individual patients' medication as being desirable. The review of medicine involves documentation and is a fundamental part of the process of pharmaceutical care (Krska *et al*., 2000:659).

2.7.4.3 Phases of pharmaceutical health care

Figure 8 illustrates how pharmaceutical care can be divided into three stages, based on (Hepler & Strand, 1990:539).

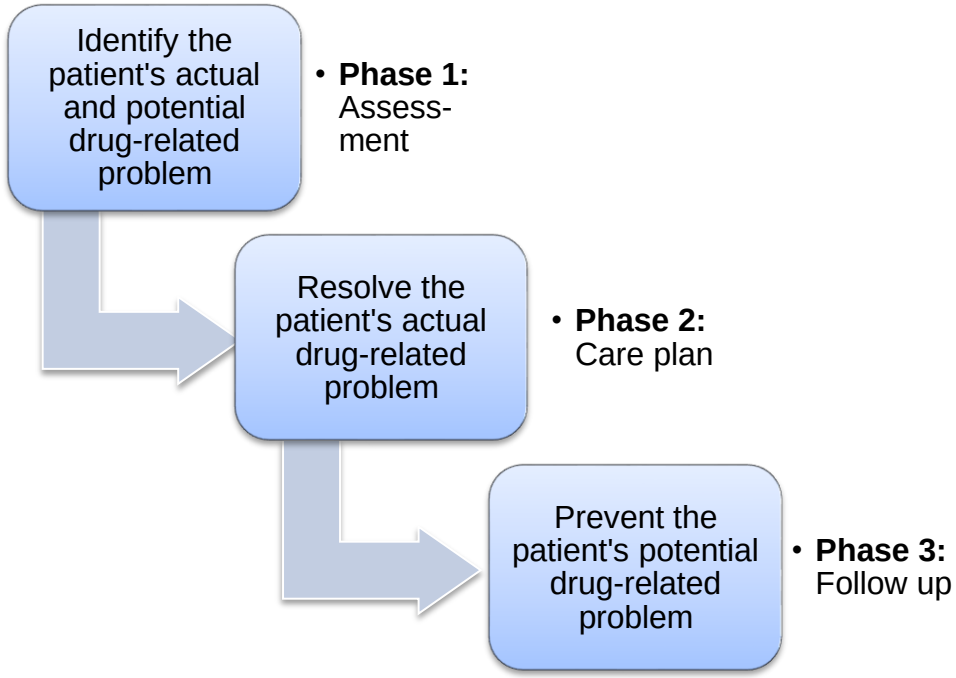


Figure 8: Phases of pharmaceutical care (Hepler & Strand, 1990:539)

The assessment phase: A patient's lifestyle, information with regards to his medicine use and the disease information of the patient are evaluated to establish the pharmacotherapy requirements of the patient. Information about the use of a patient's medicines, including side-effects experienced, are documented. The medicine in question includes prescription-only as well as OTCs and herbals. The pharmaceutical care matters recognised are to be compiled into a patient medication profile.

The pharmaceutical care plan phase: Steps are taken to improve or prevent drug-therapy problems in consultation with the patient and the relevant health care professionals. A suggested action in conjunction with the desired output is documented along with a proposed action constitutes the pharmaceutical care plan. Pharmacotherapy difficulties are prioritised, and treatment and interventions are researched and decided upon.

The follow-up phase: The execution of the plan entails that the patient is contacted at specific intervals to determine the effectiveness of the plan. The pharmaceutical care issues are categorised according to who had been involved in the action and the purpose of the action. If necessary, and with the consent of the doctor, the care plan is adjusted, and the documentation updated.

Pharmaceutical care as defined by the American Pharmacist Association is as follows: Pharmaceutical care is a process of drug therapy management that requires a change in the orientation of traditional professional attitudes and re-engineering of the traditional pharmacy environment. Certain elements of the structure must be in place to provide quality pharmaceutical care (APhA, 2017:1). Some of these elements are:

- knowledge, skill, and function of personnel;
- systems for data collection, documentation, and transfer of information;
- efficient workflow processes;
- references, resources and equipment;
- communication skills; and
- commitment to quality improvement and assessment procedures.

2.7.4.4 Motivation for pharmaceutical care

Until the early 1950s pharmacists' most prevalent activity was the compounding of prescriptions. The environment then changed, and the bulk of dispensed medicine was manufactured by the large pharmaceutical companies. The rapid development of new drugs increased availability, and a higher incidence of self-medication led to a significantly higher number of adverse drug reactions (Van Mil *et al.*, 2004:303).

Pharmaceutical care was linked with enhancements in the outcome and the severity of the disease for patients with chronic diseases such as heart failure and diabetes. An

enhancement in compliance with medicine treatment and knowledge was also demonstrated (Kane *et al*., 2003:691).

A reduced mortality has been linked to clinical pharmacy services such as clinical research, provision of medicine information, medicine admission histories, and participation on a cardiopulmonary resuscitation team (Bond *et al*., 1999:556).

Pharmaceutical care is also linked to improvements such as those requiring cholesterol risk management, the aged, and those with a higher risk of pharmacotherapeutic problems. In intensive care settings, ample proof exists for the influence of clinical pharmacist interventions on the cost of drug therapy and patient outcome (Lucca *et al*., 2012:242).

Drug-related problems tend to increase with the increase in the age of patients as the elderly tend to use more medicine (Patterson *et al*., 2012). Pharmacist interventions are shown to be effective in the creation of a care plan where the patient and the doctor were consulted. Forming better relationships with doctors and other primary health care providers enhances pharmaceutical care.

2.7.5 Pharmaceutical care in South Africa

In South Africa, the role of the pharmacist, is increasingly acknowledged. Pharmacy needs to select and do the right things for the profession to move forward. The role of the pharmacist has seen tremendous growth and change over the last few decades and needs to be embraced as it is part of the reinvention of a profession. In a message from the president of the Pharmaceutical Society of South Africa (Malan, 2015:6) the question was asked whether patients are aware that dispensing is not the main role of the pharmacist anymore and whether the practice environment allows pharmacists to do what they are qualified to contribute.

Pharmacists have the opportunity to deliver on their potential in the South African environment, especially with the proposed National Health Insurance (NHI) and the demands that it will place on the health care system. It is argued that pharmacy now have the chance to do it right, keep a record of it, publish it and ensure that everybody that matters knows about it. Additional opportunities for pharmacists to increase their value in the South African system have become available to them. Primary Care Drug Therapy and Authorised Pharmacist Prescribing provide an enormous broadening of the scope of practice of a pharmacist (Malan, 2015:6).

A further development in PHC is to practice these activities with an evidence-based approach to enhance the quality of the provided services. Establishing evidence-based practices is important for pharmaceutical care services to be effective, updated and relevant to patients.

There is an increasing awareness of the need for health care professionals to adopt an evidence-based approach to their daily practice. Practicing pharmacy in an evidence-based manner will enhance the professional skills of the pharmacist with improved patient care. The concept of evidence-based pharmaceutical care requires training and education starting from undergraduate level. Pharmacy students need to be educated how to apply science in patient care professionally. Special training on research principles, literature review and evidence-based approaches is very important to prepare the pharmacists to practice the evidence-based pharmaceutical care efficiently (Al-Quteimat *&* Amer, 2016:447)

2.7.6 Medicine optimisation

"Medicine optimisation" is the latest buzzword in pharmacy. According to Sir Bruce Keogh, England's National Health Service's medical director, medicine optimisation could revolutionise medicine use and outcomes (Robinson, 2015). The Royal Pharmaceutical Society has published four guiding principles on the concept within its report: Medicines optimisation: helping patients to make the most of medicines. It differs from medicine management in some ways, but predominantly focuses on outcomes, rather than process; and on patients, rather than systems; and is led, rather than delivered, by pharmacists. The first and foremost goal of medicine optimisation is to maximise value, i.e. the value that a patient derives from his or her medicine, and the value that the whole population experiences from investment in medicine (NICE, 2015).

2.7.6.1 Principles of medicine optimisation

The four principles of medicine optimisation, adapted from (RPS, 2013), depicted in Figure 9 are as follows:

- **Aim to understand the patient's experience.** Sufficient consultation with patients about the choice that patients made with regards to their choice of medicine as well as their experience using those medicines, is necessary to ensure the best outcome;

- **Evidence-based choice of medicines.** The most suitable choice of clinically-effective and cost-effective medicines needs to be made to ensure that the needs of the patient are best addressed;
- **Ensure medicine use is as safe as possible.** The responsibility for the safe use of medicine lies with all health care professionals as well as with health care organisations and patients. Safety comprises all aspects of medicines utilisation, such as unwanted effects, interactions, and sufficient communication between health care professionals; and
- **Make medicine optimisation part of routine practice.** Health care professionals should discuss on a regular basis with each other and with patients how to achieve maximum outcomes from pharmacotherapy during the patient's care.

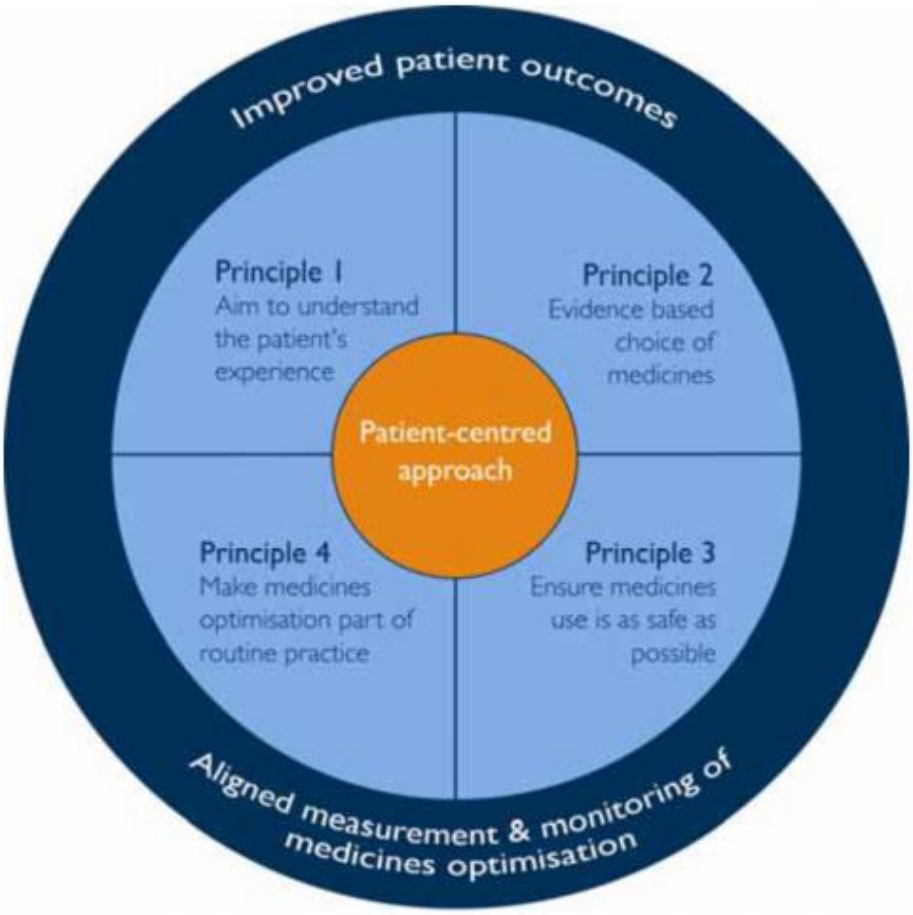


Figure 9: Summary of the principles for medicines optimisation (RPS, 2013)

Medicines optimisation is slightly different from other concepts in that it takes the whole process into deliberation to ensure that patients obtain the right medicine at the right time while refocusing on the patient experience of care. This is an opportunity to improve patient

outcomes, help them to take the appropriate medicine correctly and safely, and to reduce waste (Kruger, 2015:1).

2.7.7 Pharmacy practice in pharmaceutical care

A coached and proficient pharmacist is the appropriate professional who, as an expert in the field of medicine, can effectively handle medicine-related problems. Any medicine-related problem can harm a patient and therefore it follows that a significant solution to a medicine-related problem will be of benefit to the patient. Doctors, being experts in the diagnosis and treatment of illnesses, need to be complemented by all the other health care professionals. The pharmacist can complement by giving current, reliable and trustworthy information on medicines and their use (Lucca *et al.*, 2012:242).

Arguably, the most influential driver of pharmaceutical care is the effect of medicine related morbidity and mortality. The impact of clinical pharmacist interventions on the cost of pharmacotherapy and patient outcome in intensive care settings in hospitals has been noticed (Lucca *et al.*, 2012:242).

Prevention is better than cure. Prevention is considered as better than cure because it saves patients from the harm of curing through medicines, as all medicines have side-effects. A healthy and disciplined lifestyle is a much safer option than having to cure diseases due to carelessness. Pharmacists can play an important role in reducing patient risk by preventing medication-related problems through pharmaceutical care (Dasta & Jacobi, 1994:206).

In the United States, most pharmacies still concentrate on dispensing prescriptions. As competition curbs, the rise in dispensing fees and as operating costs increase, community pharmacies are fixated on increased productivity and endeavour to increase efficiency with technology and support personnel. Pharmacists are unsure of what the value is of their services that are not related to dispensing, with regards to pharmaceutical care. Evidence is rising of the cost of suboptimal pharmacotherapy, and that may lead to medicine management becoming a required pharmacy benefit (Christensen & Farris, 2006:1400).

In the Netherlands, all community pharmacies do not offer pharmaceutical care to the same degree, although medication surveillance is an element of their day to day practice. A similarity exists with pharmacies in other countries. Dutch pharmacists are also torn

between the inclination to provide pharmaceutical care and economic concerns (Van Mil, 2005:1720).

The Society of Critical Care Medicine Guidelines for Critical Care Services and Personnel believes that pharmacists are indispensable in the delivery of quality care to critically ill patients. These guidelines advocate that pharmacists should partake on a regular basis on rounds with the critical care team, monitoring medicine regimens (Haupt *et al.*, 2003:2683).

2.7.8 Challenges with regards to pharmaceutical care

Pharmacy has moved in recent decades from a product to a patient inclination. Changes are gaining momentum and, although, at a slow pace, the training requirements are expanding. The WHO, PAHO and FIP have published valuable documents with regards to the transformation of pharmacy from a product-based body into a clinical profession (Storpirtis, 2012).

Twenty-five years after the term pharmaceutical care has been defined the debate on its definition is ongoing. The differences in health care systems among different countries, challenges associated with resources and education, and skills development are probably responsible for it (Storpirtis, 2012).

Various studies have demonstrated a relationship between morbidity, mortality and medicine utilisation. It has proven that the control of medicine use is necessary and that it is compulsory to assess the advantages of pharmaceutical care on patients' health. A huge amount of data has been documented on clinical, economic and humanistic pharmaceutical care outcomes, as well as on pharmacotherapy issues considered as failures in medicine treatment (Storpirtis, 2012).

Reviews on the European developments in theories, implementation, education, and research related to pharmaceutical care led to the following proposition: "Pharmacists should move from behind the counter and start serving the public by providing care instead of pills only. There is no future in the mere act of dispensing” (Van Mil *et al.*, 2004:303).

The number of medicines available has increased substantially over the last few decades, carrying with it considerable challenges with regards to rational medicine utilisation. Globally, the rate of drug-related events and drug-related deaths is increasing day by day. Healthcare professionals, including pharmacists, need to pay much more attention to

preventing drug-related events and improve the treatment outcome (Parasuraman, 2016:211).

A concern exists with regards to the general safety of medicine distribution systems. To give pharmaceutical care, a pharmacist is expected to be “actively involved in the design, implementation and monitoring of an effective pharmaceutical service”. While this mirrors the scope of practice of a pharmacist, safety is less evident in the listed “Good Pharmacy Practice Requirements”. Although it is noted that a “pharmacist’s first concern must be the welfare of the patient and the public in general”, the focus is on the “promotion of rational and economic prescribing and optimal use of medicines”. That medicine use can be not only irrational and economically inappropriate but also unsafe is not emphasised (Gray, 2008:34). It is possible that a specific medicine may be prescribed or dispensed due to pressure from a manufacturer which is not appropriate for the patient. Situations do exist where a safer option would be to not supply a medicine at all.

Communication with regards to the appropriate information provided to patients is invaluable. Pharmacists need to make their vital contribution to patient care by managing the medicine utilisation of patients. Problems caused by using medicine such as non-adherence, ADR’s, therapeutic failure and medicine-choice problems represent the main pharmaceutical care issues, followed by insufficient knowledge of participants (Chua *et al.,* 2012; Wermeille *et al.*, 2004:18).

2.7.9 The future of pharmacy – evidence-based pharmaceutical care

Health care professionals’ experience or expert opinions are not sufficient to support health care decisions. High-quality research is the most accurate source of scientific evidence that can be used to identify and meet the patient’s health needs. The approach which uses the best evidence is called evidence-based approach. The term “evidence-based medicine” was originally used to describe a way of teaching the practice of medicine and enhancing decisions by individual physicians (Guyatt *et al*., 1992). Use of the term rapidly expanded to the design of guidelines and policy-making subjects (Eddy, 1990:1265). It has subsequently spread to broader term evidence-based practice, which describes an approach to decision making that can be used in all spheres of health care. Evidence-based practising is the use of the best available evidence from systematic research in conjunction with a clinician’s expertise and a patient’s values and preferences in making health care decisions (Sackett *et al.*, 1996:312).

The use of evidence-based approaches also proceeded toward other health care fields including pharmacy and pharmaceutical care. Evidence-based pharmaceutical care, like other health care disciplines, mainly has four sequential steps. Based on (Weng *et al*., 2013:112) it is illustrated in Figure 10.

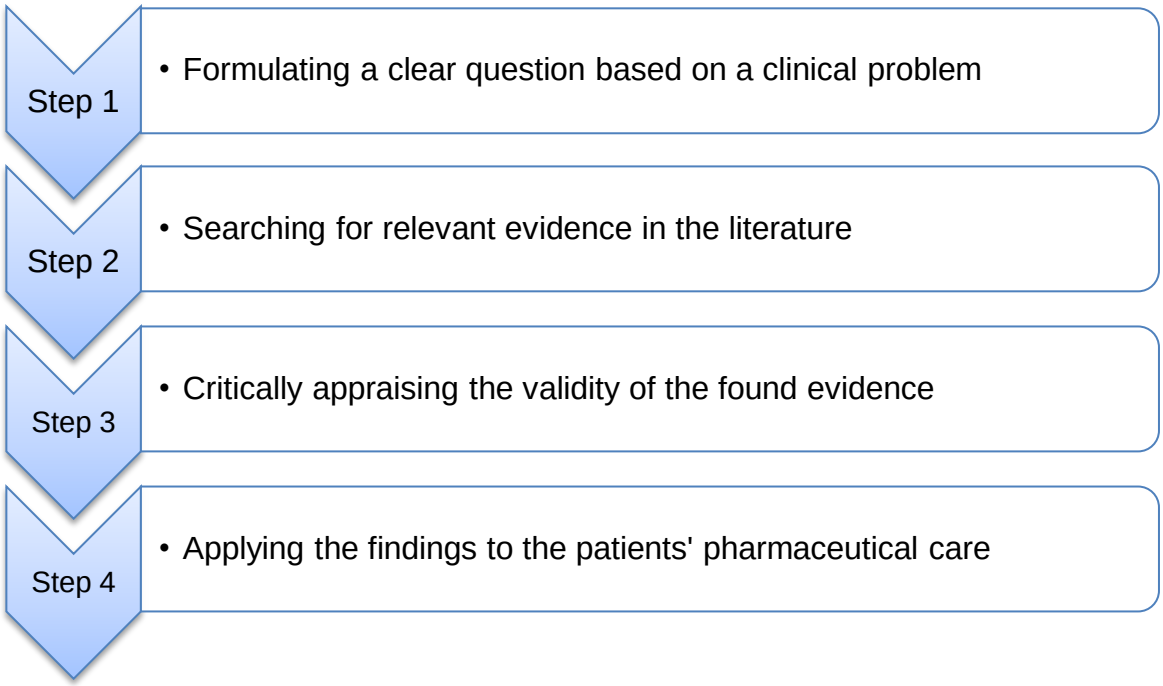


Figure 10: The four steps of evidence-based pharmaceutical care (Weng *et al., 2013:112)*

For example, research papers on the question of whether injection of adrenaline under the skin is better than injection into a muscle in severe allergic reactions were examined. An expert panel analysed these studies and combined the data from them into a systematic review. The answer that emerged in this case is that injection into muscle gives better results.

There is a need to apply an evidence-based practice system. Pharmacists need to accept and actively participate in the necessary research to establish the required evidence-based pharmaceutical care that improves a patient's quality of life and the quality of provided services. As healthcare providers, pharmacists are effective in providing high-quality patient care and being part of multidisciplinary clinical teams is needed to give them the opportunity to enhance the quality of life of patients. Evidence-based pharmaceutical care is a natural and logical emerging concept in the modern pharmacy practice to achieve high quality and more effective pharmaceutical care, but still more efforts and resources are

needed to promote new attitude towards a more professional career (Al-Quteimat & Amer, 2016:447).

The foremost challenge is being patient centred and giving sufficient attention to the patient values and expectation circle of the EBM triad as depicted in Figure 11. The academic courses available seldom provide the skills necessary to address the difficulties of the patient's viewpoint (Armstrong, 2003:353).

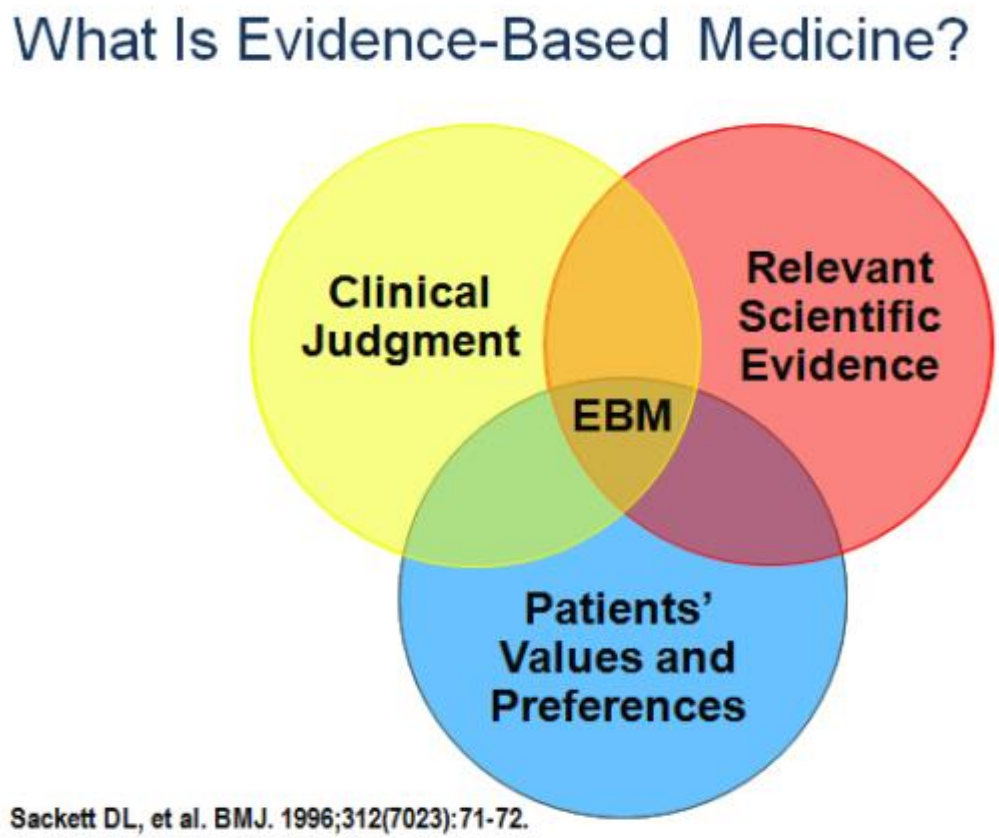


Figure 11: The three dimensions of evidence-based medicine

The incorporation of the three components of EBM into clinical decisions augments the opportunity for the best possible clinical outcomes and quality of life. EBM is usually activated by patient encounters leading to questions about the effects of therapy (Duke University Medical Center Library, 2017:2)

2.8 CONTINUING PROFESSIONAL DEVELOPMENT

The concept of Continuing Professional Development (CPD) can be defined "as the responsibility of individual pharmacists for systemic maintenance, development and

broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers." (FIP, 2017b:1).

Pharmacists are health care professionals whose professional responsibilities embrace the will to ensure that patients get the best possible therapeutic advantage from their pharmacotherapy. Maintaining competence throughout a career is a fundamental ethical requirement for all health care professionals. This requires pharmacists to keep abreast of developments in pharmacy practice and the pharmaceutical sciences, professional standards requirements, the laws governing pharmacy and medicines and advances in knowledge and technology relating to the use of medicines. This can only be achieved by an individual's commitment to CPD (FIP, 2017b:1).

2.9 CHAPTER SUMMARY

During the last half a century the role of the pharmacist has changed from that of a compounder and dispenser to one of pharmacotherapy manager. This encompasses the responsibility to ensure that quality products are procured, distributed, dispensed and administered to enhance the health of the patient. The scope of pharmacy practice now incorporates patient centred care including counselling, providing medicine information and monitoring medicine therapy, as well as technical aspects of pharmaceutical services, such as medicine supply management. Without moving the patient from the centre of the scene more and more pressure is mounting for more effective medicine regimes. A slightly different focus in pharmaceutical care is medicine optimisation, with the purpose to maximise value, i.e. the value that a patient derives from his or her medicine, and the value that the whole population experiences from investment in medicine. Evidence-based pharmaceutical care is an emerging concept in modern pharmacy practice to achieve higher quality and more effective pharmaceutical care. It is in the additional role of managing pharmacotherapy that pharmacists can now make a vital contribution to patient care.

CHAPTER 3: RESEARCH DESIGN AND DATA ANALYSIS

3.1 INTRODUCTION

The research design of a study refers to the overall strategy chosen to incorporate the different components of the study. This chapter will also explain the methods used to collect data and the statistical analysis planned.

3.2 RESEARCH SETTING

The researcher's pharmacy is a shareholder of Ring Pharmaceutical Distributors. More than half of the Ring shareholder pharmacies are situated in Pretoria.

3.3 RESEARCH APPROACH

A qualitative approach was found to be best to assess patient knowledge. A questionnaire consisting of both open-ended and closed-ended questions were used. The closed-ended questions eliminated the possibility of respondents marking the right answers by chance. The open-ended questions has allowed for response alternatives that the researcher may not have considered and which is crucial in an exploratory study. The purpose of the research is descriptive, and the data collection was in the form of a survey.

3.4 RESEARCH STRATEGY

This study is primarily exploratory research and therefore qualitative as the goal is to uncover trends in thoughts and opinions. The study was done to gain an understanding of the underlying reasons, opinions, and motivations of the perceptions of the pharmacy patrons. It has provided insights into the knowledge and understanding of the units of analysis and helped to develop ideas or hypotheses for potential quantitative research.
This empirical study consisted of four phases, namely:

- The selection of measuring instruments;
- Data analysis;
- The reporting and discussion of the results of the empirical investigation; and
- Discussion, recommendations and conclusion based on the results of the empirical investigations.

3.5 ENTRÉE AND RESEARCHER ROLES

The researcher had full access to all the Ring pharmacies, and the customers of the 24 Ring pharmacies were used as the study population. Well-informed pharmacy assistants,

employed full time by the researcher, were used at the various collection points to accept the sealed envelopes to heed to ethical standards. Where the potential respondents chose to receive the questionnaire by e-mail, their request was met. These respondents were to reply to Opperman & Partners, the independent accountants of Brug Pharmacy to retain confidentiality. The researcher had an overseer role.

3.6 SAMPLING AND GROUP SIZE

Convenience sampling was used as a non-probability sampling technique. The study population consists of clients, both male and female frequenting the Ring pharmacies. The patrons of these pharmacies were invited to complete a self-administered survey. A total of 189 individuals accepted the invitation and questionnaires were distributed to them. Completed questionnaires were accepted until a count of one hundred (100) was reached, resulting in a completion rate of 52,9%.

3.7 THE QUESTIONNAIRE

This measuring instrument, as depicted in Figure 12, has been used in a previous study by Franic *et al*. (2008). In this replication study, a pilot study was done with a small sample of respondents with minor changes made to the instrument. The result was a short, self-administered survey consisting of six items on patients' awareness and understanding of pharmacy practice (questions 9 and 10), pharmacy services (questions 11 and 12) and pharmaceutical care (questions 13(a) and 13(b). Questions 12(a) and 13(a) were dichotomous choices and items 9 to 11, 12(b) and 13(b) were open-ended questions.

Survey items

1	When your pharmacist dispenses your medicine, what have you seen your
	pharmacist do?
2	When you visit your pharmacy to get a prescription dispensed, what do you
	think your pharmacist does?
3	What services does your pharmacy provide that you are aware of
	(e.g., cholesterol testing, blood pressure testing, vaccinations)?
4(a)	Are you satisfied with the services that you have reived from your
	pharmacist? (Yes/No)
4(b)	If no, how could your pharmacist do better?
5	Have you heard of the term pharmaceutical care? (Yes/No)
6	Even if you have not heard of the term pharmaceutical care, what do you
	think it means?

Figure 12: Survey items in questionnaire, based on (Franic *et al*., 2008)

See Appendix A: Questionnaire in English

See Appendix B: Questionnaire in Afrikaans

3.8 DATA COLLECTION

Data was collected using a structured survey format using a questionnaire as measuring instrument. At each pharmacy willing to participate in the study, fliers were distributed inviting pharmacy customers to participate in the survey. This could have been done by completing the survey on site and handing it back in a sealed envelope or could be taken home with the respondent e-mailing the answer sheet to the independent accountants. If requested, the survey questionnaire was e-mailed to the potential respondent who again was to send the answer sheet to the independent accountancy firm.

The participants were asked to comment on their pharmacist, therefore participants were requested to insert their questionnaires after completion in a self-addressed envelope and to seal it properly, or where they chose to, to e-mail their responses to the independent accountants to assure absolute confidentiality.

As Pretoria is a predominantly Afrikaans speaking community, the survey had to be available in both Afrikaans and English. The questionnaire was translated by a language

expert from English to Afrikaans and again from Afrikaans to English by a different expert. The English versions were then compared, and the Afrikaans wording changed so that the meaning of both the Afrikaans and English versions were exactly the same from a pharmacy patron's view. Non-Afrikaans and non-English speaking participants were excluded from the study.

Answered questionnaires were accepted until a count of one hundred was reached.

3.9 RECORDING OF DATA

A deductive approach was used to categorise the statements of the respondents into one of four pharmacy practice models:

- apothecary (individual prescription compounding);
- dispensing (pharmacists considered as professional shopkeepers);
- early clinical (providing drug information); and
- pharmaceutical care.

Two pharmacists, not involved with the study, with ample knowledge of pharmacy practice, were identified to categorise the responses to ensure objectivity and bias.

3.10 DATA ANALYSIS

The units of analysis were the individuals visiting a pharmacy. The analysis of the data was done by the Statistical Consultation Service of North-West University where statistical programs such as SPSS Version 24, was used.

Similar studies have reported percentages for nominal data and the chi-square test to establish how confident one can be that there is a relationship between two nominal values (Bryman *et al*., 2015:327).

For interval data, means and standard deviation, independent t-tests and analysis of variance were performed in the study by Franic *et al.* (2008:192).

MS Excel software was used with regards to content analysis, i.e. to assess the participant's awareness and understanding of pharmacy practice, pharmacy services, and pharmaceutical care. This was done by determining how many times a word or terms were used. The more a term or word was used, the bigger priority was placed on that specific term or word.

The level of pharmacy practice allocated was expressed by the highest level recorded by the respondent, i.e. if the respondent defined that pharmaceutical care means that a pharmacist dispenses a prescription and mix creams, it would be recorded as in line with the distributive pharmacy practice model. However, pharmaceutical care is defined as "…responsible provision of drug therapy to achieve definite outcomes that improve the quality of life" and involves several sub-categories. This category includes:

- "commitment" – defined as the pharmacist taking care of the patient;
- "definite outcomes" – meaning that the purpose is to cure disease, reduce or prevent symptoms, or retard the progress of an illness;
- "process of care" – where the pharmacist works together with the patient and other health care professionals to recognise, resolve and preclude potential medicine-related problems; and
- "quality of life" – described as the enhancement of the health of the patient.

According to this definition, the highest level of pharmaceutical care should ideally incorporate all four sub-elements.

In this study, by describing the best possible outcome of pharmaceutical care (improving quality of life) was regarded as satisfying the highest level of pharmaceutical care ("enhanced care")

The mentioning of any one of the other sub-elements will be satisfying the model of basic care.

3.11 RELIABILITY

Reliability in qualitative studies depends on the expertise of the judges and the categorisation scheme. Two pharmacists, not involved with the study, with ample knowledge of pharmacy practice, were identified to categorise the responses to ensure objectivity and bias.

The categorisation of the patient responses was based on the definition of pharmaceutical care with consensus among judges.

3.12 ETHICAL CONSIDERATIONS

The ethics codes of informed consent, anonymity, dignity, privacy, confidentiality, honesty and transparency were adhered to to support the principles of reciprocity and avoiding

misrepresentation. No financial incentives were offered to participants. Information will only be stored on computers with passwords, and all paper will be shredded after completion of the study. All information stored on portable discs, hard drives, etc., will also be erased. All information is handled with the utmost care with regards to confidentiality. The pharmacist of the pharmacy did not and will not have access to the questionnaires as he/she was discussed in the questionnaire.

The researcher assured confidentiality by not discussing any of the patient's information or data with anyone other than the second judge.

3.13 CHAPTER SUMMARY

The research setting approach and strategy for the study were discussed as well as the role of the researcher. Being a replication study the measuring instrument used was to a very large extent the same as in the original study. Data collection and the recording of it was discussed. The analysis of the data was explained as this was important to ensure the reliability of the study.

CHAPTER 4: RESULTS AND INTERPRETATION

4.1 INTRODUCTION

In the previous chapters, the theoretical perspectives of pharmacy practice were discussed. In this chapter, these theoretical perspectives will be tested in practice to some extent. This chapter examines the empirical investigation as well as the interpretation of the results of the questionnaire. Completed questionnaires were accepted until a count of one hundred was reached.

4.2 RESEARCH FINDINGS

The measuring instrument measured the perceptions and awareness of the patrons of Ring community pharmacies with regards to their understanding of pharmacy practice, pharmacy services and pharmaceutical care. The frequencies of questions pertaining to these three categories are assessed as well as cross tabulation results.

4.3 PATIENT DEMOGRAPHICS

Figures 13 to 17 illustrate the demographic information of the respondents. All the respondents answered the demographic questions, except for one respondent who did not specify his/her income.

4.3.1 Age

Most of the respondents, as depicted in Figure 13 fell into the age groups 41 to 60 (58%) with the age groups 21 to 30 and 31 to 40 and 61 to 70 almost equally represented. 82% of the respondents were younger than 60. The largest proportion of respondents in a specific category were between ages 51 and 60 (33%).

The average age of the sample was 49.03 ± 14.74 years (range 20 to 90 years). The mean age of the males within the sample was 48.01±14.49 years (range 21 to 90 years; n=37). This was closely mirrored with a female age of 49.60±14.96 (range 20 to 90 years; n=63) (See Appendix C & D). This suggests that older individuals are more likely to visit a pharmacy, most probably due to a higher usage of medicine.

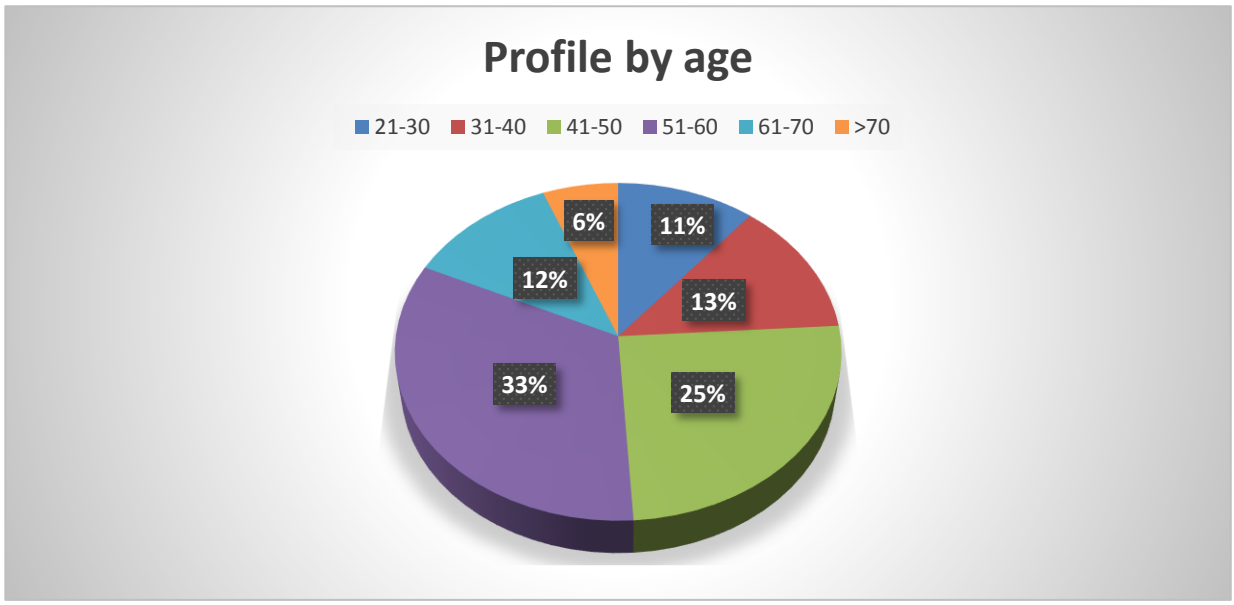


Figure 13: Number of respondents according to age group

4.3.2 Gender

Of the 100 respondents, there were more female respondents (63%) than males (37%). The male to female ratio of the study was thus 1:1.7 which does not represent the ratio of 1:1.07 in the general population (Statistics South Africa, 2010).

It is suggested that women, because of their role of caregiver in the family structure, visit pharmacies more often, hence the higher number of female responses. Communication and marketing must be directed more to females than to males. Figure 14: Ratio of respondents by gender illustrates the ratio of respondents by gender.

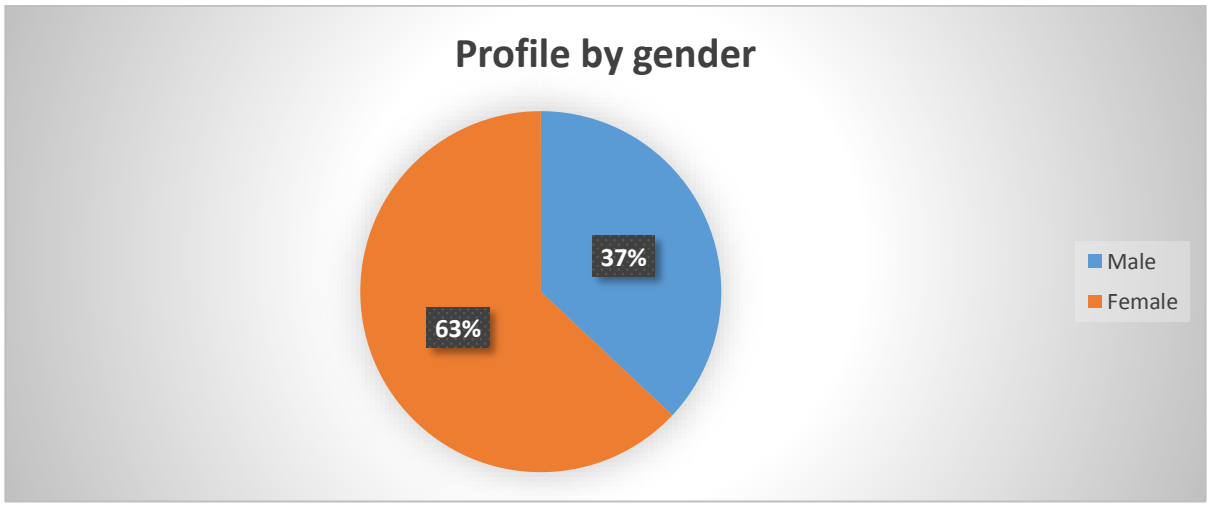


Figure 14: Ratio of respondents by gender

4.3.3 Race

Figure 15 indicates that the vast majority of respondents were white (89%) with a small ,fraction coloured (6%) and black (4%), which does not represent the demographics of South Africa. According to Statistics South Africa (2016) the census figures are Black at 80,7%, Coloured at 8,8%, White at 8,1% and Indian/Asian at 2,5%. Since Ring pharmacies are situated in the predominantly white areas, it can be granted that the ratio of the respondents would be skew.

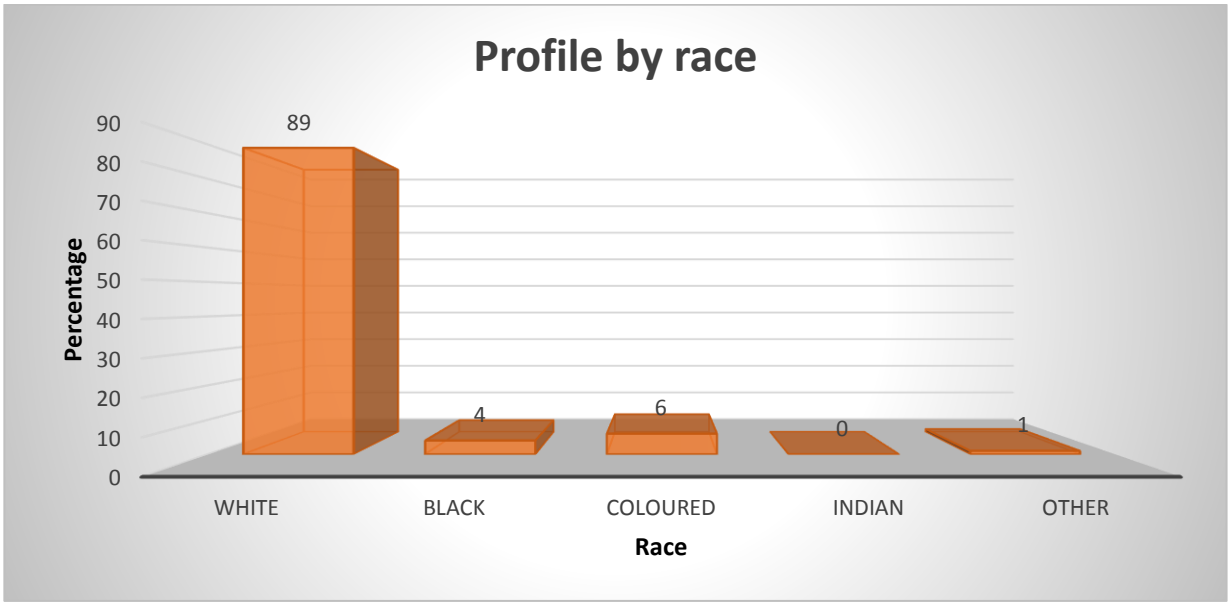


Figure 15: Respondent profile by race

4.3.4 Qualification

A small percentage of respondents (6%), had a qualification lower than matric. The majority had either matric or a diploma/degree (73%). A fairly high percentage of respondents had a post-graduate qualification (2%1). Figure 16 illustrates the distribution of respondents according to qualification.

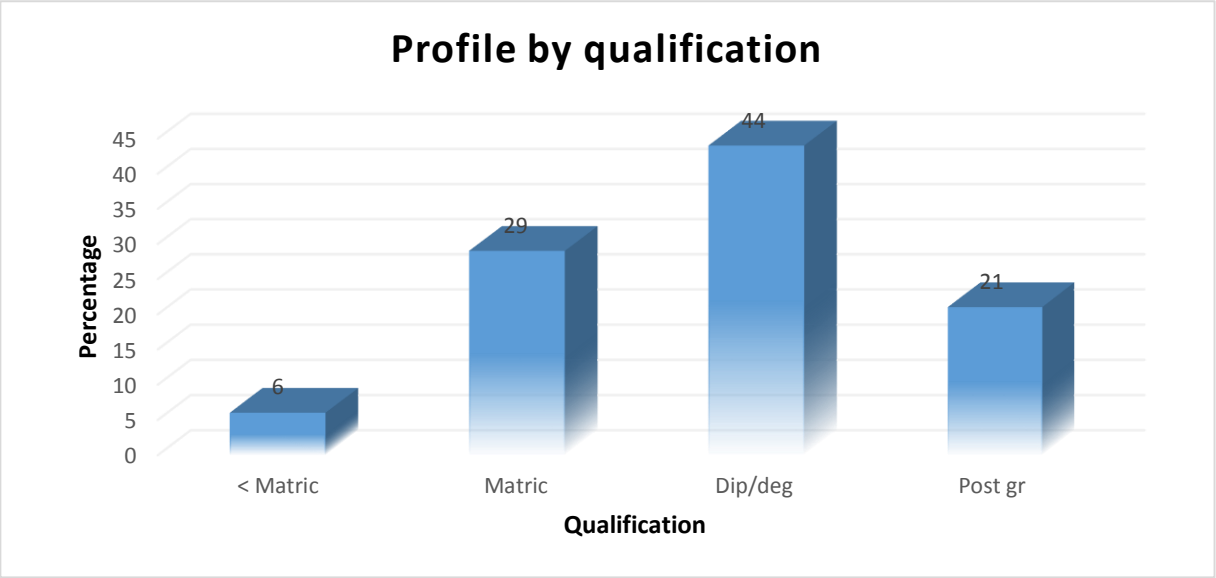


Figure 16: Number of respondents according to qualification

4.3.5 Income

Figure 17 illustrates the percentage of respondents according to income groups. The largest fraction of the respondents had an income of between R10 000 and R20 000 per month (31.3%). The income bracket that represented the second largest income group had an income higher than R40 000 per month (27.3%). The lowest income group was that of between R0 and R10 000 and 21 respondents fell into this bracket (21.2%). Only nine respondents earned between R20 000 and R30 000 per month (9.1%). The second smallest income bracket was selected by a small fraction of respondents that had an income of between R30 000 and R40 000 per month (11%).

In summary, 52% of respondents earned less than R20 000 per month and 48% earned more than R30 000 per month.

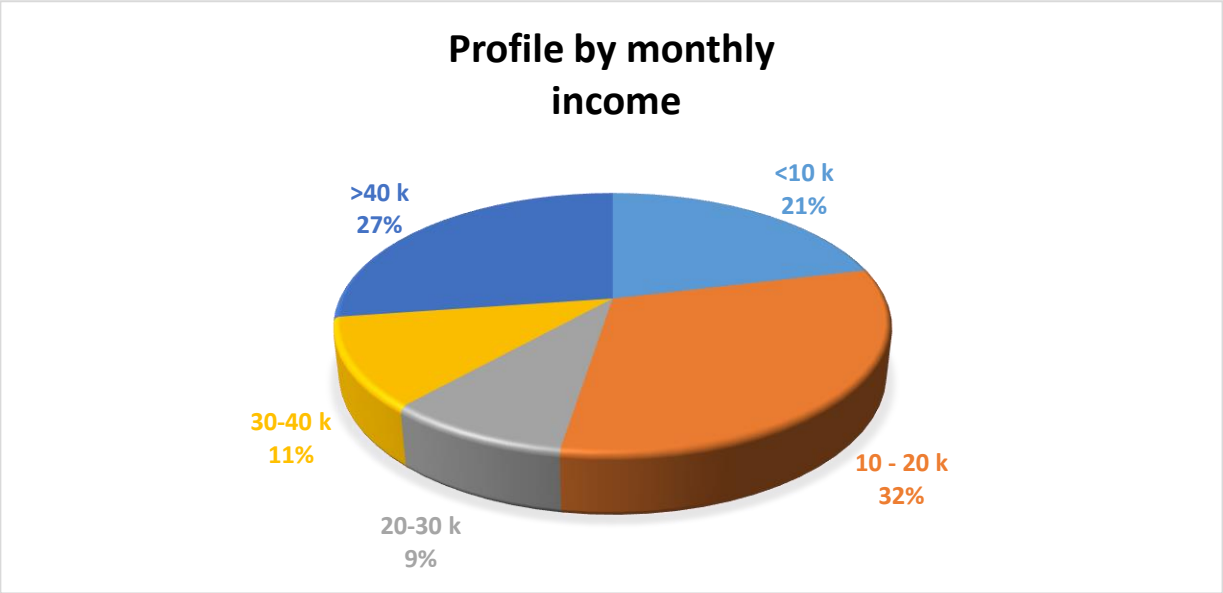


Figure 17: Number of respondents according to income

4.4 BEHAVIOURAL INFORMATION

Figures 18 to 20 illustrate the behavioural information of the respondents. The respondents answered all the questions except for one respondent who did not indicate whether he knew the name of his pharmacist or not.

4.4.1 Reason for visiting pharmacy

Acute prescriptions were the reason for visiting the pharmacy on the day of contact (9%) by the lesser number of respondents, with OTC purchases filling in the second most indicated (23%). The main reason for respondents to visit the pharmacy was for a repeat prescription (45%). 23% of patrons visited the pharmacy that day for other reasons. Filling a prescription from a medical practitioner (54%), i.e. for acute and repeat prescriptions combined, prompted patients to visit the pharmacy on the day they answered the questionnaire. Figure 18 illustrates the profile of respondents by reason for visiting the pharmacy.

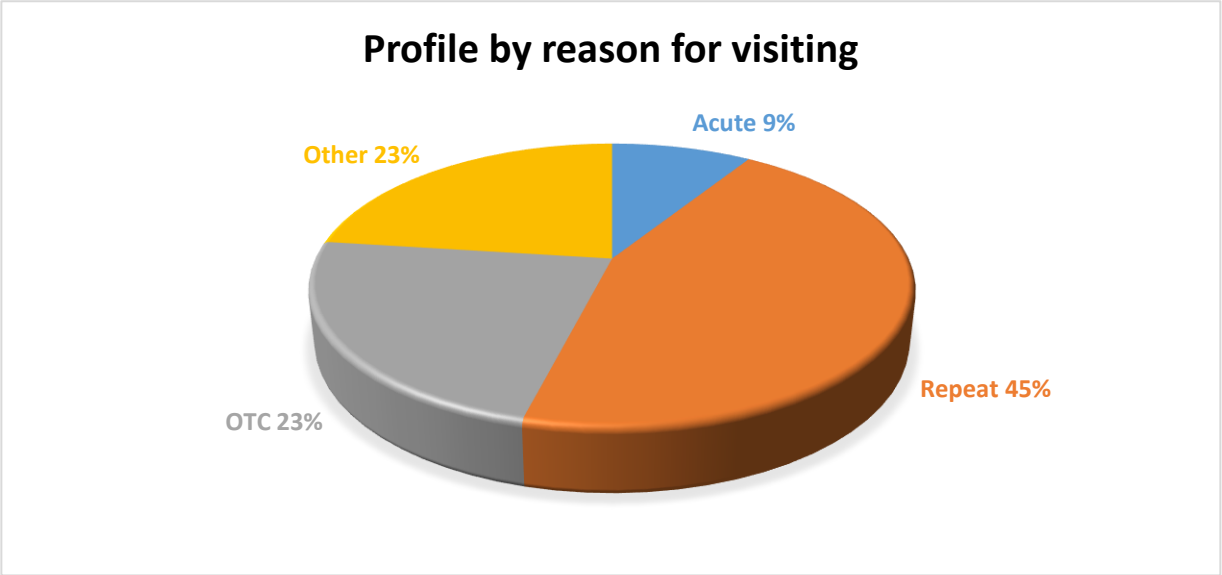


Figure 18: Reason for visiting the pharmacy on the day receiving a questionnaire

4.4.2 Knowledge of pharmacist's name

It can be seen from Figure 19 that 66% of patrons knew the name of their pharmacist, which suggested that these respondents visit that specific pharmacy on a regular basis.

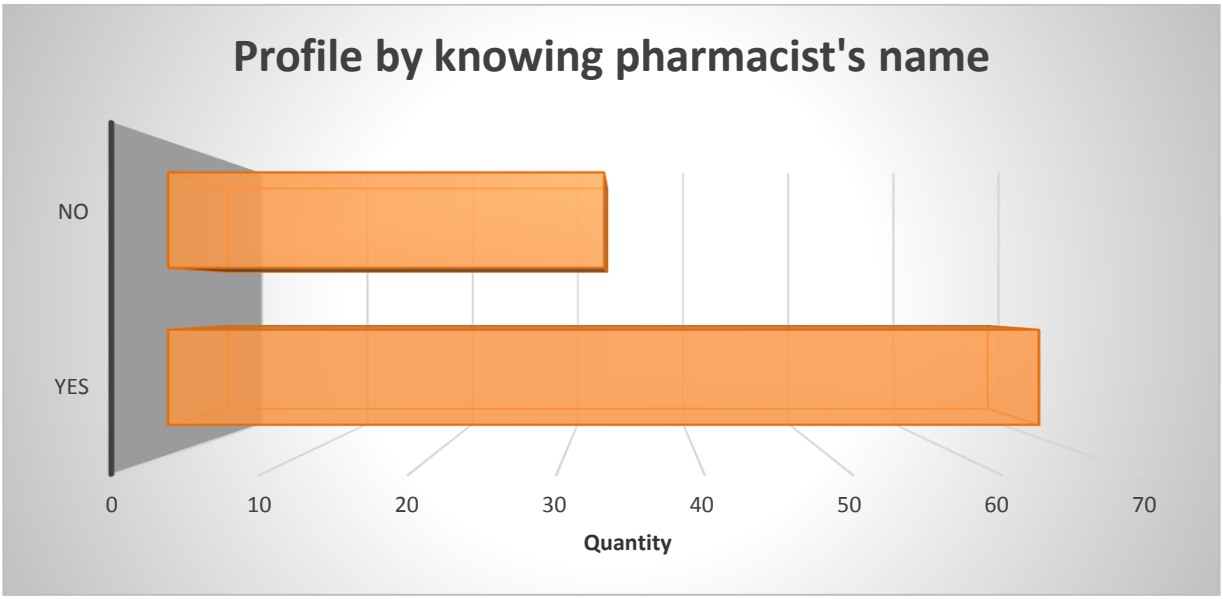


Figure 19: Respondents that knew the name of their pharmacist

4.4.3 Member of medical aid

As can be seen from Figure 20, only 15% of respondents did not belong to a medical aid. The majority of patients visiting Ring pharmacies belong to medical aids. Some medical aid service providers are willing to fund services provided in community pharmacies to increase the quality of life of their members.

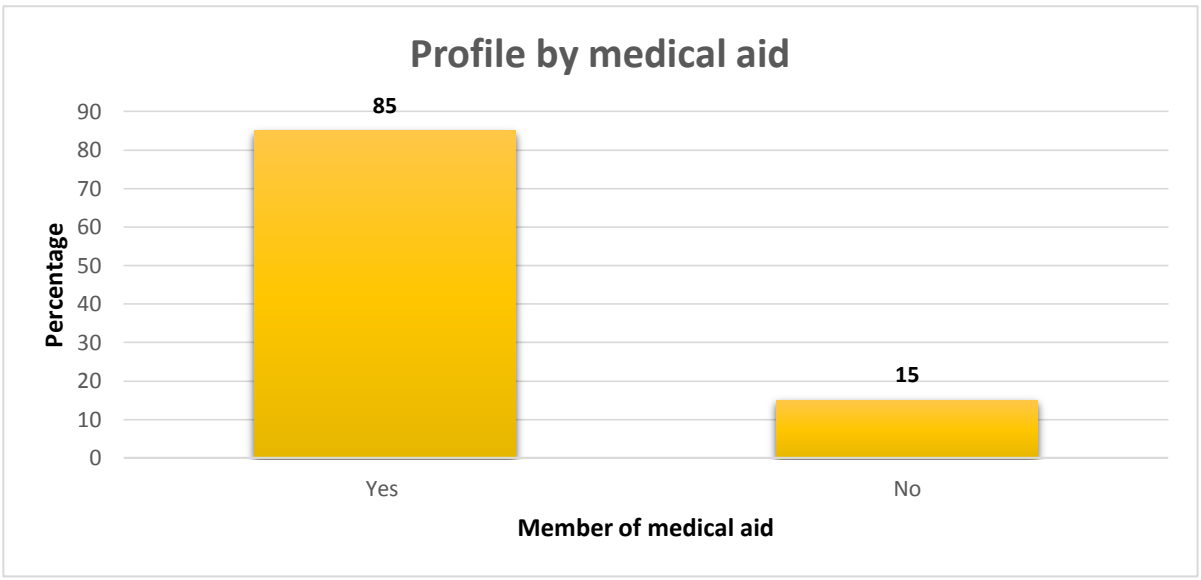


Figure 20: Distribution of respondents with membership to medical aid

4.5 PHARMACY PRACTICE

4.5.1 Participants' observations of pharmacists' activities (Question 9).

When completing the questionnaire, the respondents had the opportunity to choose more than one option as they were asked to indicate all the actions that they have seen their pharmacist perform. The same applied to the answering of question 10. From this is follows that the undermentioned percentages would not add up to 100.

Of the 100 respondents, 25% have seen their pharmacist checking prescriptions for the correct medication, and 15% have experienced their pharmacist explain how to use the medicine correctly and educate patients on the use of the medicine. One-third (33%) of respondents said that they saw their pharmacist label their medicine containers with almost two-thirds (66%) saying that saw their pharmacist counting pills or fetching medicine from the shelf. 22% of the respondents saw their pharmacist looking up information, and 5% of respondents experienced their pharmacist asking for permission for generic substitution. Only 3% saw their pharmacist enquiring about allergies. Table 1 illustrates the number of observations and perceptions regarding the activities of the pharmacist.

Table 1: Number of observations and perceptions regarding pharmacists' activities

Code	Q 9	Q 10	Replies in English
1	25	39	Checks for correct medication
			Confirm the medicine issued by doctor
			Read through the script
2	33	26	Enter prescription into computer
			Input information into system
			Type on his computer
			Look on computer
3	1	1	Fills the prescription quickly and accurately
4	35	17	Label container
5	65	44	Count pills
			Secure the medicine
			Fetched medicine form shelf
6	22	16	Looks up information
7	15	17	Educates patients on prescription
			Verbally explains dosage
			Give instructions on use and dosage
8	2	0	Asks if I have questions
9	1	0	Asks about my problem
10	6	5	Enquires about my medical aid information
11	5	6	Asks permission for generic substitution
12	3	1	Asks about allergies

4.5.2 Participants' perceptions of pharmacists' activities (Question 10)

When completing the questionnaire, the respondents had the opportunity to choose more than one option as they were asked to indicate all the actions that they have seen their pharmacist perform. From this is follows that the undermentioned percentages would not add up to 100.

As depicted in table 1, of the 100 respondents, 39% expected their pharmacist checking prescriptions for the correct medication and 17% have the perception that their pharmacist explains how to use the medicine correctly and educate patients on the use of the medicine. Only one-sixth (17%) of respondents expected their pharmacist to label their medicine containers with 44% having the perception that their pharmacist counts pills or fetching medicine from the shelf. 16% of respondents believe their pharmacist should look up information and 6% of respondents believe that their pharmacist does generic substitution. Only 1% perceive their pharmacist is enquiring about allergies.

4.5.3 Cross-tabulation of question 9 and 10

Table 2 below illustrates the cross-tabulation of respondents believing and observing that prescriptions are checked for correctness. Some 64% of respondents saw their pharmacist checking prescriptions for correctness and believe that their pharmacist is doing that.

Statistical significance refers to whether the observed effect is larger than we would expect by chance. A statistical significance level of 0.05 is normally accepted. However, p-values will be reported for completeness sake but not interpreted since a convenience sample instead of a random sample was used. Interpretation therefore will be based on effect size by means of the phi coefficient where:

- ~0.1 practical non-significant association or small effect
- ~0.3 practical visible significant association or medium effect
- ~0.5 practical significant association or large effect

Table 2 below illustrates the cross tabulation of respondents believing and observing that prescriptions are checked for correctness. Therefore, the reported p-value is 0.003 with a phi coefficient (φ) of 0.296 that indicates that a practical visible significant association or medium effect exists. Of the 39 respondents expecting the pharmacist to check their prescriptions for correctness only 41% of them actually saw the pharmacist do it. 85.2% of those not expecting it also did not see it happen.

Table 2: Cross tabulation of respondents believing and observing that prescriptions are checked for correctness

			Q9.1		Total
			Observed	Not observed	
Q10.1	Expected	Count	16	23	39
		%	41.0%	59.0%	100.0%
	Not expected	Count	9	52	61
		%	14.8%	85.2%	100.0%
Total		Count	25	75	100
		%	25.0%	75.0%	100.0%

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	0.296	0.003
	Cramer's V	0.296	0.003
N of Valid Cases		100	

Table 3 below illustrates the cross-tabulation of respondents believing and observing in practice that their information was entered into the computer. $\varphi = 0.375$ (p-value < 0.001) points to a practical visible to practical significant association or medium to large effect. 61.5% of respondents believing that their pharmacist should enter their information into the computer also saw their pharmacist enter the information into the computer. The majority (78.4%) of those not expecting it also did not see it happen.

Table 3: Respondents believing and observing in practice that their information was entered into the computer

			Q9.2		Total
			Observed	Not observed	
Q10.2	Expected	Count	16	10	26
		%	61.5%	38.5%	100.0%
	Not expected	Count	16	58	74
		%	21.6%	78.4%	100.0%
Total		Count	32	68	100
		%	32.0%	68.0%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.375	0.000
	Cramer's V	0.375	0.000
N of Valid Cases		100	

Table 4 below illustrates the cross-tabulation of respondents believing and observing medicine being counted and secured. φ=0.18 (p-value = 0.071) indicates a practical non-significant association or small effect exist. In both cases the observed percentages were the highest, 72% and 54% respectively.

Table 4: Respondents believing and observing medicine being counted and secured

			Q9.5		Total
			Observed	Not observed	
Q10.5	Expected	Count	31	12	43
		%	72.1%	27.9%	100.0%
	Not expected	Count	31	26	57
		%	54.4%	45.6%	100.0%
Total		Count	62	38	100
		%	62.0%	38.0%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.181	0.071
	Cramer's V	0.181	0.071
N of Valid Cases		100	

Table 5 below depicts the respondents believing and observing dosages explained and the education of patients with regards to the use of their medicine. A practical significant association exist as indicated by φ=0.406 (p-value < 0.001). 47.1% of the 17 respondents believing that dosages should be explained has experienced it in practice that their pharmacist educate patients on the use of medicine. 91.6% of those not expecting that dosages should be explained also did not experience it happening.

Table 5: Respondents believing and observing patient education with regards to medicine use

			Q9.7		Total
			Observed	Not observed	
Q10.7	Expected	Count	8	9	17
		%	47.1%	52.9%	100.0%
	Not expected	Count	7	76	83
		%	8.4%	91.6%	100.0%
Total		Count	15	85	100
		%	15.0%	85.0%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.406	0.000
	Cramer's V	0.406	0.000
N of Valid Cases		100	

4.6 PHARMACY SERVICES

4.6.1 Perceived availability of pharmacy services (Question 11).

Of the 100 respondents, 27% did either not respond at all to the question or was not aware of any services or gave an answer that was irrelevant to the question. It is important to note that respondents were requested to list *all* the services that they are aware of, thus the percentages indicate the number of respondents indicating the specific service each time. As a service that respondent were aware of blood pressure monitoring was mentioned 63 times, screening service was mentioned 87 times in total, and injections were mentioned 54 times. The majority of respondents were aware of blood pressure monitoring (n=63), blood sugar testing (n=20), cholesterol testing (n=51) and the administering of injections (n=54). Convenience services, like delivery and passport photos, were only mentioned 3

times. One conclusion that can be made is that these services are not of a high importance to pharmacy patrons.

Table 6 illustrates the number of respondents mentioning the services supplied by their pharmacy that they are aware of.

Table 6: Typical participant responses to perceived pharmacy services

Code	Count	Clinical	English
0	27	No response	
1	63	Blood pressure monitoring	Blood pressure
2	20	Screening tests	Blood sugar
3	51		Cholesterol
4	7		HIV
5	3		Uric acid
6	3		Malaria
7	3		Pregnancy tests
8	5	Family planning	
9	0		
10	54	Injections/vaccinations	
11	2	Primary care	
12	5	Diet /weight monitoring	
13	4	Baby weighing	
14	1	Ear piercing	
15	2	Small medical procedures	
16	4	Health advice/diabetes counselling	
18	2	Wound care	
Code	**Count**	**Convenience**	**English**
17	2	Delivery	Delivery
19	1	Passport photos	Passport photos

4.6.2 Patient satisfaction with pharmacy services (Question 12).

Almost all participants (96%) declared that they were satisfied with the services provided by their pharmacist as depicted in Table 7. The non-response rate was very low (n=1). From the above it is clear that respondents are very much aware of the screening tests and vaccinations done in community pharmacies.

Table 7: Frequencies of respondents that was satisfied with the service supplied by their pharmacist

Variable		Category	Percent
Happy with services received?		Yes	96.0
		No	4.0
	Total		100.0

Respondents were asked how their pharmacist could do better. The majority of the recommendations provided focussed on convenience factors such as shorter queues and quicker service. In 3 cases reference was made with regards to personnel with two respondents suggesting more personal service and one asking for a more professional approach to just servicing one client at a time. No suggestions were made with regards to professional pharmacy services.

Table 8 displays the number of respondents that had suggestions for better service as well as the suggested improvements.

Table 8: Typical participant responses as to service improvement

Code	Count	English
1	2	More personal service
2	1	Improve quality control
3	1	Shorter queues
4	5	Quicker service
5	1	Improve professionalism/help one client at a time

4.7 PHARMACEUTICAL CARE

4.7.1 Have you heard of the term pharmaceutical care? (Question 13(a)).

As depicted in Table 9, of the 97 responses to the question, 52.6% of respondents indicated that they have heard of the term pharmaceutical care and 47.4% of participants revealed that they have not heard of the term.

Table 9: Awareness of the term pharmaceutical care

Variable			Percent
Heard of the term pharmaceutical care?		Yes	52.6
		No	47.4
	Total		100.0

4.7.2 What do you think pharmaceutical care means (Question 13(b))?

Table 10 illustrates some of the typical responses received with regards to respondents' understanding of pharmaceutical care.

From this table it is clear that a rather large proportion of respondents still see their pharmacist as a dispenser or professional shopkeeper. A somewhat smaller proportion describe their pharmacist with the characteristics of early clinical practice. Nearly half of the respondents described the actions of their pharmacist as that of the attributes of pharmaceutical care.

Table 10: Typical participant responses to their understanding of pharmaceutical care

Code	Description	English responses
1	Apothecary	The preparation, use or sale of medicinal drugs
	(Compounding)	
2	Dispensing phase	Prescribing medication
	(Professional shopkeepers)	Making sure I get the right medicine
		Recommend generics
3	Early clinical practice	Giving expert advice
	(Interacting and providing	Combination of pharmacist's advice
	drug information)	The pharmacist explains how medicine should be treated
4	Basic Pharmaceutical care	More than just medication and dispensing
	(Commitment)	The pharmacist forms a relationship with you
		Providing the patient with the most efficient medication
		You and the pharmacist work together
5	Highest level of Pharmaceutical care	When my pharmacist can go above and beyond
	(Definite outcomes, Process of care,	to give me correct advice
	Quality of life)	The pharmacist, doctor and health care advisors
		work together

Table 11 displays the number of respondents according to their understanding of the term pharmaceutical care. The majority (n=74) provided their own definition of what they think the term pharmaceutical care means. The high level of non-response is an indication that some of the participants had difficulty with answering the question.

As illustrated in Table 11, one respondent defined the term as the apothecary (compounding) phase of pharmacy practice, 14 as the dispensing (professional shopkeeper) phase, and 11 as the early clinical practice phase (interacting and providing information). The remaining 48 were constant with the definition of pharmaceutical care. 33 defined the term as basic pharmaceutical care with the remainder of 15 defining pharmaceutical care at the highest level (definite outcomes, quality of life).

Table 11: Frequency table of the highest level of respondents' perception of pharmaceutical care

Variable		Category	Frequency
Perception of the term Pharmaceutical Care	0	Nonresponse	26
	1	Apothecary	1
	2	Dispensing	14
	3	Early clinical	11
	4	Basic PC	33
	5	High level PC	15
	Total		100

4.7.3 Cross-tabulation of age and respondent definition of pharmaceutical care.

The level of understanding of the term pharmaceutical care (PC) was, for all practical purposes, the same in all the age groups. Cramer's V =0.228 indicates a practical visible significant association or medium effect (p-value = 0.434).

Table 12 illustrates that basic PC scored the highest in all the age groups. In the age group, 21 to 30 most of the respondents described PC as basic PC (45.5%) and second most as dispensing (18.2%). Non-response was high at 37.3%. In the age group, 31 to 40 most of the respondents (36.0%) described PC as basic PC with a higher level of PC taking the second place at 24%. In the age group, 51 to 60 most of the respondents (29%) described PC as basic PC. A more even spread was noticed in this age group as 19.4% described PC as dispensing, 19.4% as early clinical and 22.6% as higher level PC. In the age group between 61 and 70 PC was described by 25% of respondents as basic PC with another 25% describing it as early clinical. In this age group, the nonresponse was 41.7%. In the age group older than 70 years of age the term PC was described by 33.7% of respondents as basic PC. A description that fitted that of dispensing and early clinical practice were given by 16.7% of respondents respectively. The non-response rate was high in all the age groups.

Table 12: Cross tabulation of age and the definition of PC

	Category		Non-response	Apothecary	Dispen-sing	Early clinical	Basic PC	Higher level PC	Total
Age	21 to 30	Count	3	0	2	1	5	0	11
		%	27.3%	0.0%	18.2%	9.1%	45.5%	0.0%	100.0%
	31 to 40	Count	4	0	2	0	5	2	13
		%	30.8%	0.0%	15.4%	0.0%	38.5%	15.4%	100.0%
	41 to 50	Count	7	1	2	0	9	6	25
		%	28.0%	4.0%	8.0%	0.0%	36.0%	24.0%	100.0%
	51 to 60	Count	3	0	6	6	9	7	31
		%	9.7%	0.0%	19.4%	19.4%	29.0%	22.6%	100.0%
	61 to 70	Count	5	0	1	3	3	0	12
		%	41.7%	0.0%	8.3%	25.0%	25.0%	0.0%	100.0%
	> 70	Count	2	0	1	1	2	0	6
		%	33.3%	0.0%	16.7%	16.7%	33.3%	0.0%	100.0%
Total		Count	24	1	14	11	33	15	98
		%	24.5%	1.0%	14.3%	11.2%	33.7%	15.3%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.510	0.434
	Cramer's V	0.228	0.434
N of Valid Cases		98	

4.7.4 Cross-tabulation highest qualification and respondent definition

Table 13 illustrates the association between qualification and the definition of pharmaceutical care. The Cramer value of 0.275 indicates a practical visible significant association (p-value = 0.1)

In the group whose highest qualification is less than matric, only one respondent described pharmaceutical care is dispensing. The rest of the respondents in this group did not answer the question. In the respondent group with a qualification of Grade 12, most of the respondents (48.3%) described PC as basic PC. 10.3% of the respondents in this group described PC as dispensing, and another 10.3% described it as higher lever PC. In the diploma/degree respondent group, 25% respondents described PC care as basic PC with 18.2% describing it as higher-level PC. The postgraduate group of respondents had 42.1%

of respondents describing PC as basic PC with 21.1% describing it as higher-level PC. A very high nonresponse rate was noticed in the qualification less than Grade 12 (83.3%).

Table 13: Cross tabulation of highest qualification and definition of PC

	Category		Non-response	Apothe-cary	Dispen-sing	Early clinical	Basic PC	Higher level PC	Total
Qualification	< Matric	Count	5	0	1	0	0	0	6
		%	83.3%	0.0%	16.7%	0.0%	0.0%	0.0%	100.0%
	Matric	Count	6	1	3	2	14	3	29
		%	20.7%	3.4%	10.3%	6.9%	48.3%	10.3%	100.0%
	Diploma/ degree	Count	11	0	7	7	11	8	44
		%	25.0%	0.0%	15.9%	15.9%	25.0%	18.2%	100.0%
	Post graduate	Count	2	0	3	2	8	4	19
		%	10.5%	0.0%	15.8%	10.5%	42.1%	21.1%	100.0%
Total		Count	24	1	14	11	33	15	98
		%	24.5%	1.0%	14.3%	11.2%	33.7%	15.3%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.477	0.100
	Cramer's V	0.275	0.100
N of Valid Cases		98	

4.7.5 Cross-tabulation monthly income and respondent definition

Table 14 depicts the association between income and the definition of pharmaceutical care. Cramer's V of 0.236 (p-value = 0.357) indicates a practical non-significant association or small effect. Understanding the term, pharmaceutical care, was, for all practical purposes, the same in all the income categories. The respondents with a grade 12 qualification are most probably younger and might have a better understanding of pharmaceutical care.

Table 14: Cross tabulation of monthly income and respondent definition of PC

	Category		Non-response	Apothe-cary	Dispen-sing	Early clinical	Basic PC	Higher level PC	Total
Monthly income	< 10000	Count	7	0	3	2	8	0	20
		%	35.0%	0.0%	15.0%	10.0%	40.0%	0.0%	100.0%
	10000 - 20000	Count	6	1	6	1	10	7	31
		%	19.4%	3.2%	19.4%	3.2%	32.3%	22.6%	100.0%
	20000 - 30000	Count	1	0	1	0	5	2	9
		%	11.1%	0.0%	11.1%	0.0%	55.6%	22.2%	100.0%
	30000 - 40000	Count	5	0	1	2	2	1	11
		%	45.5%	0.0%	9.1%	18.2%	18.2%	9.1%	100.0%
	> 40000	Count	4	0	3	6	8	5	26
		%	15.4%	0.0%	11.5%	23.1%	30.8%	19.2%	100.0%
Total		Count	23	1	14	11	33	15	97
		%	23.7%	1.0%	14.4%	11.3%	34.0%	15.5%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.473	0.357
	Cramer's V	0.236	0.357
N of Valid Cases		97	

4.7.6 Cross-tabulation of question 13(a) and 13(b)

Table 15 illustrates the relationship between having heard of the term PC and the description of the term as apothecary. φ of 0.097 (p-value = 0.34) indicates a practical non-significant association or small effect.

More than half of the R20000 to R30000 income group described the term pharmaceutical care as that of basic pharmaceutical care. The respondents of the lower income groups had a better understanding of pharmaceutical care that of the two higher income groups.

Table 15: Relationship between having heard of the term PC and the description of the term as apothecary

			Apothecary	Not described as apothecary	Total
Have you heard of the term pharmaceutical care?	Yes	Count	1	50	51
		%	2.0%	98.0%	100.0%
	No	Count	0	46	46
		%	0.0%	100.0%	100.0%
Total		Count	1	96	97
		%	1.0%	99.0%	100.0%

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	0.097	0.340
	Cramer's V	0.097	0.340
N of Valid Cases		97	

Table 16 illustrates the relationship between having heard of the term PC and the description of the term as dispensing. φ of -0.077 (p-value = 0.446) indicates a practical non-significant association or small effect.

Table 16: Relationship between having heard of the term PC and the description of the term as dispensing

			Dispensing	No	Total
Have you heard of the term pharmaceutical care?	Yes	Count	11	40	51
		%	21.6%	78.4%	100.0%
	No	Count	13	33	46
		%	28.3%	71.7%	100.0%
Total		Count	24	73	97
		%	24.7%	75.3%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-0.077	0.446
	Cramer's V	0.077	0.446

Tablet 17 illustrates the relationship between having heard of the term PC and the description of the term as early clinical. φ of 0.043 (p-value = 0.67) indicates a practical non-significant association or small effect.

Table 17: Relationship between having heard of the term PC and the description of the term as early clinical

			Early clinical	No	Total
Have you heard of the term pharmaceutical care?	Yes	Count	7	44	51
		%	13.7%	86.3%	100.0%
	No	Count	5	41	46
		%	10.9%	89.1%	100.0%
Total		Count	12	85	97
		%	12.4%	87.6%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.043	0.670
	Cramer's V	0.043	0.670

Table 18 illustrates the relationship between having heard of the term PC and the description of the term as basic PC. φ of -0.059 (p-value = 0.562) indicates a practical non-significant association or small effect.

16 respondents, having heard of the term, has described it as basic PC. P=0.562 illustrates the absence of statistical significance and φ = -0.059 illustrates a negative practical non-significant association or small effect.

Table 18: Relationship between having heard of the term PC and the description of the term as basic PC

			Basic PC	No	Total
Have you heard of the term pharmaceutical care?	Yes	Count	16	35	51
		%	31.4%	68.6%	100.0%
	No	Count	17	29	46
		%	37.0%	63.0%	100.0%
Total		Count	33	64	97
		%	34.0%	66.0%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-0.059	0.562
	Cramer's V	0.059	0.562

Table 19 illustrates the relationship between having heard of the term PC and the description of the term as higher-level PC. φ of 0.155 (p-value = 0.127) indicates a practical non-significant association or small effect.

Table 19: Relationship between having heard of the term PC and the description of the term as higher-level PC

			Higher level PC	No	Total
Have you heard of the term pharmaceutical care?	Yes	Count	10	41	51
		%	19.6%	80.4%	100.0%
	No	Count	4	42	46
		%	8.7%	91.3%	100.0%
Total		Count	14	83	97
		%	14.4%	85.6%	100.0%

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	0.155	0.127
	Cramer's V	0.155	0.127

Table 20 portrays a summary of how many of the respondents have heard of the term pharmaceutical care taking into account their thinking of what the term means.

Table 20: Table indicating the quantity of respondents that have heard of the term taking into account their definition of the term

	Heard of the term?	
Respondent definition	**Yes**	**No**
Apothecary	100	0
Dispensing	45.8	54.2
Early clinical practice	58.3	41.7
Basic pharmaceutical care	48.5	51.5
Highest level pharmaceutical care	71.4	28.6

The one respondent that described pharmaceutical care as apothecary (compounding) indicated that he has heard of the term before. 45.8% of the descriptions of the term that actually defined dispensing came from respondents indicating that they have heard of the term before. The 48.5% and 71.4% of the respondent defining it as basic PC and highest level of PC indicated that they have heard the term before.

Table 21 depicts the association between the definition of pharmaceutical care of those that have heard of the term before and those who have not heard of the term before.

Table 21: Table indicating the definition of pharmaceutical care of those that have heard of the term before

Hear of the term?	No response	Apothecary	Dispensing	Early clinical	Basic PC	Highest PC
Yes	25.5%	2.0%	11.8%	11.8%	29.4%	19.6%
No	22.2%	0.0%	17.8%	11.1%	40.0%	8.9%

25.5% of respondents that indicated that they have heard of the term before did respond to as what they thought the term means. Nearly 12% of those hearing the term before described it as dispensing and early clinical respectively. Half of the respondents demonstrating their hearing of the term before described it as pharmaceutical care (29.4% as basic PC and nearly 20% as the highest level of PC).

4.8 CHAPTER SUMMARY

The results of the three sections of the questionnaire were reported on, i.e. patient demographics, behavioural information and pharmacy practice. The observations and perceptions on the activities of their pharmacist were reported on as well as the perceived availability of pharmacy services and patient satisfaction with regards to these perceived services. The chapter concludes with the reporting of what pharmaceutical care is perceived to be.

CHAPTER 5: DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

5.1 INTRODUCTION

This chapter contains conclusions with regards to the literature review as well as to the empirical investigation, and recommendations are made.

5.2 DISCUSSION

The convenience sample used in this study was completed by 100 respondents. The sampling frame was all Ring pharmacies. It is, however, unknown as to which Ring pharmacy's patients responded to the invitation to participate in the survey. The response rate is also unknown as it was not possible to determine how many patrons of the Ring pharmacies accepted the invitation to complete the survey, but never returned the questionnaire.

The mean age of the participants was 49.03 ± 14.74 years (range 20 to 90 years). Male participants displayed a slightly lower mean age of 48 than the 49 years of female respondents. 58% of respondents were between 41 and 60 years of age. Roughly two-thirds of respondents were female (n=63). As the vast majority of Ring pharmacies are situated in the predominantly white suburbs, it came as no surprise that 89% of respondents were white. 65% of respondents were educated to a diploma level or higher, 44% being in possession of a diploma or degree, and 21% having a post-degree qualification. The majority of respondents (32%) earned between R10 000 and R20 000 per month. 27% of participants earned more than R40 000 per month (Figures 13, 14, 15, 16, 17).

The main reason for visiting their pharmacy was for a repeat prescription (45%), followed by the purchase of an OTC product (23%), or a non-medicinal product (23%). Nearly two-thirds of respondents knew the name of their pharmacist suggesting that they are regular patrons of a specific pharmacy. The 85% of respondents having a medical aid is indicating that they have a stable income, and which coincides with a Living Standards Measure (LSM) 7-10 (Figures 18, 19, 20).

A significant relationship exists between what their pharmacist was seen doing and the perception of what their pharmacist does (Table 1). Of the 39 respondents expecting the

pharmacist to check their prescriptions for correctness only 41% of them actually saw the pharmacist do it. 85.2% of those not expecting it also did not see it happen (Table 2).

61.5% of respondents believing that their pharmacist should enter their information into the computer also saw their pharmacist enter the information into the computer. The majority (78.4%) of those not expecting it also did not see it happen.

50% of participants believed and observed that their information was entered into the computer and their medicine being counted and secured (Table 4). A strong belief therefore exists that patients perceive the basic role of their pharmacist as dispensing since they mostly described their (pharmacist's) tasks as technical. It could be concluded that patients do not understand the full role of their pharmacists. It follows then that, if the patient does not have a clear understanding of the role of the pharmacist, it is not unexpected that they do not expect and request counselling from their pharmacists.

Approximately 15% of respondents have mentioned the role of education in the survey (Questions 9 and 10), with 53% believing and observing patient education with regards to medicine use. 47.1% of the 17 respondents believing that dosages should be explained has experienced it in practice that their pharmacist educate patients on the use of medicine. 91.6% of those not expecting it also did not experience it happening (Table 5).

Nearly a quarter or respondents were not aware of pharmacy services provided by their pharmacy (Table 6). The majority of respondents that knew pharmacy services were provided was aware of screening tests, blood pressure monitoring and the administering of injections.

Pharmacy services like primary care, weight monitoring, ear piercing and wound care were barely listed. Only a very small percentage of respondents mentioned convenience services like delivery and the taking of passport photos. Pharmacy services were not addressed at all.

Nearly all respondents indicated that they were satisfied with the services provided (Table 7). Of those respondents that made suggestions on how the services could be improved, 80% focused on convenience factors such as shorter queues and faster service. A more personal service approach and professional were also recommended (Table 8). Patients need to be served promptly without delaying them unnecessarily, yet at the same time providing quality service as to avoid issuing incorrect medicines.

Just more than half of the respondents have heard of pharmaceutical care indicating a lack of communication of the pharmacy profession with potential clients (Table 9). Approximately 25% of total respondents did not respond to the question, indicating that some respondents had difficulty in answering the question (Table 11).

Nearly half of the respondents (48%) did describe pharmaceutical care in line with the definition of pharmaceutical care, although only 15% of respondents described it at the highest level, with a third of respondents describing it at a basic level (Table 11).

The basic description of pharmaceutical care varied in all age groups between 25% and 45%, with last mentioned in the age group 20 to 30. This response from the young age group could be an indication of a better understanding of the purpose of pharmacotherapy or just a better understanding of the language itself (Table 12).

Of the respondents, with a matric or higher qualification, the biggest portion of respondents described PC as basic, with percentages ranging from 25% to 48% (Table 13). A similar situation occurred within the different income groups. Although a very even spread of understanding occurred in the R30 000 to R40 000 income group (excluding non-respondents), the highest percentages were awarded to basic PC in all the different income brackets (Table 14).

Of the respondents that described PC at the highest level, 71% have heard the term before. Much lower percentages of respondents that described the terms as dispensing, early clinical practice and basic PC have heard or the terms before (Table 20). Of those respondents that had heard of the term before the largest percentage described it as basic PC (nearly 30%) followed by the highest level of PC (nearly 20%) (Table 21).

A conspicuous finding was the high nonresponse rate with regards to defining pharmaceutical care (Question 13(b); Table 11). Two possible reasons for nonresponse could be:

- Question sensitivity. The question could have been regarded as intrusive or invasive; or
- Cognitive effort. Answering the question was regarded as too much effort.

The questionnaire did not address the performance of the respondent's pharmacist which makes it unlikely that question sensitivity could be the reason for non-response.

The most likely reason is therefore cognitive effort. A possibility exists that respondents did not have a preconceived idea of pharmaceutical care.

The absence of respondent familiarity with the term pharmaceutical care is concerning. As much as the notion of pharmaceutical care is held dearly by profession, it has not trickled down to the practice of community pharmacy.

The possible explanations that can be presented for the lack of awareness of pharmaceutical care are as follows:

- Patients are not sufficiently educated with regards to the role of the pharmacist;
- Pharmacy advertising concentrates on professional shopkeeper tasks such as free delivery, saving with generic medicines, claiming from medical aids and providing credit;
- The ethical rules of the profession emphasise that with regards to advertising the information about available services and the distribution and content of publicity for professional services should be dignified and restrained (SAPC, 2008);
- The professional tasks and services are not visible enough; and
- Pharmaceutical care is not widely provided for patients.

Although a very high level of satisfaction was reported with regards to satisfaction with the services received (Table 7), it could be argued that the high levels of satisfaction are reported at the backdrop of their low expectation of pharmacy services.

5.3 RECOMMENDATIONS

Community pharmacy needs to focus on customer needs and expectations, especially with regards to the ease of accessibility and the quality of service. This would lead to a higher level of professionalism. More competent staff, with more knowledge and insight with regards to the products and services offered, could lead to shorter queues and quicker service. Employees must be equipped to withstand work-related pressure. They need to be able to handle patients in a calm manner during peak times. The friendly and caring staff creates the environment in which patients would experience a more personal service. Wherever possible patrons of the pharmacy should be greeted by name as this would strengthen the belief and experience of a more personal service.

Patients need to be educated regarding the availability of clinical services and pharmaceutical care in community pharmacies.

The profession needs to raise the expectation of patients. It is possible that it could lead to reduced patient satisfaction, but the upside could be more positive with regards to the reimbursement for these services.

5.4 SUGGESTIONS FOR FURTHER RESEARCH

A study to determine the patient's willingness to pay for pharmacy services as well as the quantum of the amount.

5.5 CONCLUSIONS

In this chapter, the objectives of the empirical study were reached and reported. The sample chosen is not differentiated with regards to their understanding of pharmaceutical care to a large extent on age, qualification or income.

The results of this study have shown that many patients are ignorant with the notion of pharmaceutical care. They are not aware of the pharmacy services available and therefore are not demanding these services.

The profession is urged to educate their patients about the services that they are willing and able to provide. More informed patients can result in better outcomes.

REFERENCES

ACCP (American College of Clinical Pharmacy). 2008. The definition of clinical pharmacy. *Pharmacotherapy*, 28(6):816–817

AHA (American Hospital Association). 2017. Consumer engagement: leading the way to innovation in health care. *Hospitals & health networks*, 91(8):11-15.

Allemann, S.S., van Mil, J.W., Botermann, L., Berger, K., Griese, N. & Hersberger, K.E. 2014. Pharmaceutical care: the PCNE definition 2013. *International journal of clinical pharmacy*, 36(3):544-55.

Al-Quteimat, O.M. & Amer, A.M. 2016. Evidence-based pharmaceutical care: the next chapter in pharmacy practice. *Saudi pharmaceutical journal*, 1016:447-451

APhA (American Pharmacist Association). 2017. Principles of practice for pharmaceutical care. https://www.pharmacist.com/principles-practice-pharmaceutical-care. Date of access: 1 Jun. 2017.

Armstrong, E.C. 2003. Harnessing new technologies while preserving basic values. *Systems & Health: The journal of collaborative family health care*, 2003; 21(4): 351-355.

Aronson, J.K. 2004. Over-the-counter medicines. *British journal of clinical pharmacology*, 58(3):231-234

ASHP (American Society of Hospital Pharmacists). 1998. ASHP statement on pharmaceutical care. *American journal for hospital pharmacists* 1993, 50:1720–3.

ASHP (American Journal of Health-System Pharmacy). 1998. International pharmacists adopt statement on pharmaceutical care. *American journal of health-system pharmacy*, 55(24):2598

Bond, C.A., Raehl, C.L. & Franke, T. 1999. Clinical pharmacy services and hospital mortality rates. *Pharmacotherapy*, 9(5):556-64.

Bronkhorst, E., Schellack, N., Gous, A.G.S. & Pretorius, J.P. 2014. The need for pharmaceutical care in an intensive care unit at a teaching hospital in South Africa. *Southern African journal of critical care*, 30(2):41-44.

Bryman, A., Bell, E., Hirschsohn, P., Dos Santos, A., du Toit, J., Masenge, A., Van Aardt, I. & Wagner, C. 2015. Research methodology: business and management contexts. Cape Town: Oxford University.

Cambridge Advanced Learner's Dictionary & Thesaurus. 2017. https://dictionary.cambridge.org/dictionary/english/medication Date of access: 1 Jul. 2017

Christensen, D.B. & Farris, K.B. 2006. Pharmaceutical care in community pharmacies: practice and research in the US. *Annals of pharmacotherapy*, 40(7-8):1400-1406.

Chua, S.S., Kok, L.C., Yusof, F.A., Tang, G.H., Lee, S.W.H., Efendie, B. & Paraidathathu, T. 2012. Pharmaceutical care issues identified by pharmacists in patients with diabetes, hypertension or hyperlipidaemia in primary care settings. https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-12-388 Date of access: 1 Oct. 2017

Dale, G. & Friend, M. D. 1959. Polypharmacy; multiple-ingredient and shotgun prescriptions. *The New England journal of medicine*, 260:1015-1018

Dasta, J.J. & Jacobi, J. 1994. The critical care pharmacist: what you get is more than what you see. *Critical care medicine*, 22(6):906-908

De las Cuevas, C. & Sanz, E.J. 2004. Polypharmacy in psychiatric practice in the Canary Islands. *BMC psychiatry,* 4:18

Dolan, P. & Olsen, J.A. 2002. Distribution of health care: economic and ethical issues. Oxford: Oxford University.

Duerden, M., Avery, T. & Payne, R. Polypharmacy and medicines optimisation: making it safe and sound. 2013. http://www.volgmed.ru/uploads/files/2014-12/35099-prilozhenie_1-3_k_informacionnomu_pismu_2.pdf Date of access: 12 Mar. 2017.

Dugan, B. D. 2006. Enhancing community pharmacy through advanced pharmacy practice experiences. *American journal of pharmaceutical education*, 70(1):21

Duke University Medical Center Library. 2017. Introduction to evidence-based practice. http://guides.mclibrary.duke.edu/c.php?g=158201&p=1036021 Date of access: 15 Sep. 2017.

Du Toit, J. 2016. 76th International congress of FIP from a community pharmacy perspective. *South African pharmacy journal*, 83(8):62

Du Toit, J. & Le Roux, K. 2015. Shaping the future of community pharmacists in South Africa. *South African pharmacy journal,* 82(1):45

Eddy, D.M. 1990. Practice policies: where do they come from? *Journal of the American medical association*, 263(9): 1265-75.

Fatti, G., Monteith, L., Shaikh, N., Kapp, E., Foster, N. & Grimwood, A. 2016. Implementation and operational research: a comparison of two task-shifting models of pharmaceutical care in antiretroviral treatment programs in South Africa. *Journal of acquired immune deficiency syndromes*, 71(4):107-13.

FIP (International Pharmaceutical Federation). 2017a. Good Pharmacy practice. https://www.fip.org/good_pharmacy_practice Date of access: 4 October 2017.

FIP (International Pharmaceutical Federation). 2017a. FIP statement of professional standard continuing professional development. http://www.fip.org/www/uploads/database_file.php?id=221&table_id= Date of access: 10 Sep. 2017.

Fisher, R. B. 1977. Joseph Lister, 1827-1912. London, MacDonald and Jane

Franic, D. M., Tucker, L. T. & Haddock, S. M. 2008. Pharmaceutical care: what's in a name? Qualitative analysis of patient perceptions of pharmacy practice. *Journal of pharmacy technology,* 24:191-201

Gray, A. 2008. Good Pharmacy Practice and Safety –missing pieces of the jigsaw? *South African pharmacy journal*, 75(5):34-36

Guyatt, G., Cairns, J., Churchill, D*. et al. 1992.* Evidence-Based Medicine Working Group. Evidence-based medicine. A new approach to teaching the practice of medicine. *Journal of the American medical association*, 268(17):2420-5.

Haupt, M.T., Bekes, C.E., Brilli, R.J., Carl, L.C., Gray, A.W., Jastremski, M.S., Naylor, D.F. & Wedel, S.K. 2003. Guidelines on critical care services and personnel: recommendations based on a system of categorization of three levels of care. *Critical care medicine,* 31(11):2677-83

Hepler, C.D. 1987. The third wave in pharmaceutical education and the clinical movement. *American journal of pharmacy education*, 51:369-385

Hepler, C.D. & Strand, L.M. 1990. Opportunities and responsibilities in pharmaceutical care. *America journal of hospital pharmacy*, 47(3):533-543.

Jafar, A. 2000. Pharmacy in Bagdad. *The pharmaceutical journal*, 265(71):273-274 http://www.pharmaceutical-journal.com/pharmacy-in-baghdad/20002545.article Date of access: 11 January 2017.

Johnell, K. & Klarin, I. 2007. The relationship between number of drugs and potential drug-drug interactions in the elderly. *Drug safety*, 30:911–18.

Kane, S.L., Weber, R.J. & Dasta, J.F. 2003. The impact of critical care pharmacists on enhancing patient outcomes. *Intensive care medicine*, 29(5):691-8.

Koonce, T.Y., Giuse, D.A., Beauregard, J.M. & Giuse, N.B. 2007. Toward a more informed patient: bridging health care information through an interactive communication portal. *Journal of the medical library association*, 95(1):77-81

Kramer, S.N. 1963. The Sumerians, their history, culture and character. Chicago: The University of Chicago press.

Krska, J., Cromarty, J.A., Arris, F. Jamieson, D. & Hansford, D. 2000. Providing pharmaceutical care using a systematic approach. *The pharmaceutical journal*, 265(7120):656-660.

Kruger, J. 2015. It is the outcome that counts, not the intervention. *South African pharmacy journal,* 82(2):5

Lamb, C.W., Hair, J.F., McDaniel, C., Terblanche, N., Elliot, R. & Klopper, H.B. 2015. Marketing. 5th ed. Cape Town: Oxford University Southern Africa (Pty) Limited.

Lehigh Valley Health Network. 2017. Types of primary care physicians. https://www.lvhn.org/our_services/care_services/primary_care/types_of_primary_care_physicians Date of access: 1 Jun. 2017.

Leng, S. 2015. Patients are not customers. Here are 6 reasons why. KevinMD.com. http://www.kevinmd.com/blog/2015/02/patients-not-customers-6-reasons.html Date of access: 15 Jun. 2017.

Lucca, J.M., Ramesh, M., Narahari, G.M. & Minaz N. 2012. Impact of clinical pharmacist interventions on the cost of drug therapy in intensive care units of a tertiary care teaching hospital. *Journal for pharmacology and pharmacotherapeutics*, 3(3):242-7

Lyons, A.S. 2017. The Nineteenth Century — The Beginnings of Modern Medicine (Part 1) http://www.healthguidance.org/entry/6352/1/The-Nineteenth-Century--The-Beginnings-of-Modern-Medicine-Part-1.html Date of access: 15 May 2017.

MacLaughlin, E.J., Raehl, C.L., Treadway, A.K., Sterling, T.L., Zoller, D.P. & Bond, C.A. 2005. Assessing medication adherence in the elderly: which tools to use in clinical practice? *Drugs aging*, 22:231–255.

Malan, S. 2015. "It's all about doing the right thing, in the right way, at the right time and for the right reason". *South African pharmaceutical journal*, 82(6):6

Malangu, N. 2014. The future of community pharmacy practice in South Africa in the light of the proposed new qualification for pharmacists: implications and challenges. *Global journal of health science*, 6(6):226-266)

Malhotra, N.K., Ulgado, F. M., Agaarval, J., Shainesh, G. & Wu, L. 2004. Dimentions of service quality in developed and developing economies: multi-country cross-cultural comparisons. *International marketing review*, 22(3):256-278.

Mikeal, R.L., Brown, T.R., Lazarus, H.L. & Vinson, M.C. 1975. Quality of pharmaceutical care in hospitals. *American journal of hospital pharmacy,* 32:567-574.

Ndenze, B. 2017. SA has huge pharmaceutical skills shortage. https://www.timeslive.co.za/news/south-africa/2017-06-28-sa-has-huge-pharmaceutical-skills-shortage/ Date of access: 15 Jul. 2017.

NEDLAC (National Economic Development and Labour Council). 2000. Pharmaceutical Manufacturing Sector Study. Johannesburg: Labat Africa/CMCS. http://www.nedlac.org.za/top.asp?inc=research/fridge/2000/pharm_manufacture/main.html Date of access: 4 Mar. 2015.

Nichols-English, G.J. 2002. Lay people and health professionals' awareness of the value of pharmaceutical care. *Journal of pharmaceutical marketing management,* 15:31

NICE (National Institute for Health and Care Excellence). 2015. Medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. https://www.nice.org.uk/guidance/ng5/resources/medicines-optimisation-the-safe-and-effective-use-of-medicines-to-enable-the-best-possible-outcomes-51041805253 Date of access: 27 Jun. 2017.

Parasuraman, S. 2016. Challenges in pharmaceutical care. *Rapports de pharmacie*, 2(2):211-212

Parker, P.M. 2006. Webster's Online Dictionary with Multilingual Thesaurus Translation. Fontainebleau: INSEAD. http://www.websters-online-dictionary.org Accessed on 25 Feb. 2017.

Parthasarathi, G., Nyfort-Hansen, K. & Nahata, M.C. 2004. Text book of clinical pharmacy practice: essential Concepts and Skills. Chennai: Orient Longman Private Limited.

Patterson, S.M., Hughes, C.A., Kerse, N., Cardwell, C.R & Bradley, M.C. 2012. Interventions to improve the appropriate use of polypharmacy for older people. Cochrane database of systematic reviews. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008165.pub2/abstract Date of access: 13 Mar. 2017.

PCNE (Pharmaceutical Care Network Europe). 2013. Position paper on the definition of pharmaceutical care 2013.

http://www.pcne.org/upload/files/3_PCNE_Definition_Position_Paper_final.pdf Date of access: 1 Oct. 2017.

Pharmacy Act **see** South Africa

Phillips, J.O., Strand, L.M., Chesteen, S.A. & Morley, P.C. 1987. Functional and structural prerequisites for clinical pharmacy services. *American journal of hospital pharmacy,* 44(7):1598-605.

Pruskowski, J., Arnold, R. & Skledar, S.J. 2017. Development of a health-system palliative care clinical pharmacist. *American journal of health-system pharmacy*, 74(1):6-8

PSSA (Pharmaceutical Society of South Africa). 2017. PSSA comments on policy and draft legislation. *South African pharmaceutical journal*, 79(1):7-11

Robinson, S. 2015. Medicines optimisation: more than a buzzword? *The pharmaceutical journa*l, 294(7845)

Roughead, L., Semple, S. & Vitry, A. 2002. The Value of Pharmacist Professional Services in the Community Setting. A Systematic Review of the Literature 1990–2002. http://6cpa.com.au/wp-content/uploads/Community-Pharmacy-Research-Support-Centre-final-report-the-value-of-professional-pharmacist-services-in-the-community-setting.pdf Date of access: 20 Jun. 2017.

RPS (Royal Pharmaceutical Society). 2013. Medicines optimisation: helping patients to make the most of medicines. https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Policy/helping-patients-make-the-most-of-their-medicines.pdf Date of access: 10 Oct. 2017.

Ryan, M. 1986. A history of organised pharmacy in South Africa 1885-1950. Cape Town: Creda.

Sackett, D.L., Rosenberg, W.M.C., Gray, J.A.M., Haynes, R.B. & Richardson, W.S. 1996. Evidence based medicine: what it is and what it isn't. *British medical journal*, 312:71

SAICA (South African Institute for Chartered Accountants). 2016. Consumer Protection Act, No 68 of 2008. https://www.saica.co.za/Technical/LegalandGovernance/Legislation/ConsumerProtectionAct/tabid/1911/language/en-ZA/Default.aspx Date of access: 1 Sep. 2017.

SAPC (South African Pharmacy Council). 2008. BN 108 of 24 October 2008: Rules relating to Code of Conduct (Government Gazette No. 31534). https://www.mm3admin.co.za/documents/docmanager/0C43CA52-121E-4F58-B8F6-81F656F2FD17/00010774.pdf Accessed on 10 Oct. 2017.

SAPC (South African Pharmacy Council). 2010. Good pharmacy practice manual. 4th ed. Pretoria: SAPC.

SAPC (South African Pharmacy Council). 2015a. Good pharmacy practice. (*Board Notice 50). Government gazette*, 38511:173, 27 Feb.

SAPC (South African Pharmacy Council). 2015b. Good pharmacy practice. http://www.pharmcouncil.co.za/ Date of access: 16 Jun. 2015.

Scottish government. 2015. Pharmacy and medicines. http://www.gov.scot/Topics/Health/NHS-Workforce/Pharmacists Date of access: 14 May 2017.

Sello, D. A., Serfontein, J. H., Lubbe, M. S. & Dambisya, Y. M. 2012. Factors influencing access to pharmaceutical services in underserviced areas of the West Rand District, Gauteng Province, South Africa: original research. *Health SA gesondheid,* 17(1):1–8.

Shah, B.S., Gibson, J.L. & Tex, J.L. 2013. The 21st century pharmacy technician. Burlington: Jones & Bartlet Learning.

South Africa. 1974. Pharmacy Act 53 of 1974: *Government gazette* 23480:8, 3 Jun. 2002.

Statistics South Africa. 2010. http://mobi.statssa.gov.za/census2011/Gender.html Date of access: 10 Sep. 2017.

Statistics South Africa. 2016. Statistical release. Mid-year population estimates. https://www.statssa.gov.za/publications/P0302/P03022016.pdf Date of access: 15 Augustus 2017.

Storpirtis, S. 2012. Perspectives and challenges in pharmaceutical care. *Brazilian journal of pharmaceutical sciences*, 48(4)

Strand, L.M., Cipolle, R.J., Morely, P.C., & Perrier, D.G. 1991. Levels of pharmaceutical care: a needs-based approach. *American journal of hospital pharmacy*, 48:547

Van Boven, J.F., Stuurman-Bieze, A.G., Hiddink, E.G., Postma, M.J. & Vegter, S. 2014. Medication monitoring and optimization: a targeted pharmacist program for effective and

cost-effective improvement of chronic therapy adherence. *Journal of managed care pharmacy,* 20:786-792

Van Mil, J.W. 2005. Pharmaceutical care in community pharmacy: practice and research in the Netherlands. *Annals of pharmacotherapy*, 39(10)1720-5

Van Mil, J.W.F., Schultz, M. & Tromp, T.F.J. 2004. Pharmaceutical care, European developments in concepts, implementation, teaching, and research: a review. *Pharmacy world and science*, 26(6):303-311.

Weng, Y.H., Kuo, K.N., Yang, C.Y., Lo, H.L., Chen, C. & Chiu, Y.W. 2013. Implementation of evidence-based practice across medical, nursing, pharmacological and allied health care professionals: a questionnaire survey in nationwide hospital settings. *Implementation science*, 24;8:112

Wermeille, J., Bennie, M., Brown, I. & McKnight, J. 2004. Pharmaceutical care model for patients with type 2 diabetes: integration of the community pharmacist into the diabetes team. *Pharmacy world and science*, 26:18-25.

Williams, A., Manias, E. & Walker, R. 2008. Interventions to improve medication adherence in people with multiple chronic conditions: a systematic review. *Journal of advanced nursing*, 63:132–43.

Woolf, J. S. 2009. Women's Business: 17th-Century Female Pharmacists. Chemical Heritage Foundation, 27(3): 20–25.

Zebroski, B. 2016. A brief history of pharmacy: humanity's search for wellness. New York, NY: Routledge.

APPENDICES

A: Questionnaire in English

B: Questionnaire in Afrikaans

C: Age statistics – all respondents

D: Age statistics – male versus female

APPENDIX A

Questionnaire in English

Dear Participant

I am a third year MBA student at the North-West University: School for Business and Governance and is conducting a study for the completion of my MBA degree.

The purpose of this questionnaire is to evaluate the awareness and understanding of pharmacy practice, pharmacy services and pharmaceutical care from the patient's point of view.

There will be no intentional danger, risks or harm brought to you in your participation. To complete the questionnaire should not take more than 10 minutes of your time.

Although I would be pleased if you would answer all the questions truthfully, you are under no obligation to complete the questionnaire and may withdraw at any point in time. After completion or the questionnaire, please scan and mail the questionnaire to a.opperman@mweb.co.za Your opinion will be kept absolutely confidential.

For your anonymity to be preserved, I request that you create a personal code in the first part of the questionnaire. The code you create will only be known to you. This code will allow me to differentiate between participants.

I thank you and truly appreciate your support and time.

Kind regards

Jaco du Toit

Section A

Your personal code, which will only be known to you, is made up of the following:

Code (Personal and Confidential)	Example	Your code
1. Provide the first and last letters of the town/city in which you were born	Pretoria = PA	
2. Provide the first and last letters of your mother's maiden name (surname before she got married)	Smith = SH	
3. Provide the first and last letter of your father's fist name	Peter = PR	

Section B

Biographical Information

The information below is required for meaningful data analysis. Mark the applicable block with a cross (x). Please complete all questions.

1	Your age	Years:	Months:

2	Sex:	1. Male	2. Female

3	Race:	1. White	2. Black	3. Coloured	4. Indian	5. Other

4	Highest qualifications	1. Below matric	2. Matric	3. Diploma/ degree	4. Post graduate

5	Monthly income	R0 to R10000	R10000 to R20000	R20000 to R30000	R30000 to R40000	More than R40000

Section C

Behavioural information

Mark the applicable block with a cross (x). Please complete all questions.

6	What was the reason for you visiting this pharmacy today?	1. Acute prescription	2. Repeat prescription	3. Over the counter purchase	4. Other

7	Do you know your pharmacist's name?	1. Yes	2. No

8	Do you have a medical aid?	1. Yes	2. No

Section D

Awareness Information

Please answer the questions in the space provided

9	When your pharmacist dispenses your medicine, what have you seen your pharmacist do?

10	When you visit your pharmacy to get a prescription dispensed, what do you think your pharmacist does?

11	What services does your pharmacy provide that you are aware of (e.g., cholesterol testing, blood pressure testing and vaccinations)?

12(a)	Are you satisfied with the services that you have received form your pharmacist	1. Yes	2. No
12(b)	If no, how could your pharmacist do better?		

13(a)	Have you heard of the term pharmaceutical care?	1. Yes	2. No

13(b)	Even if you have not heard of the term pharmaceutical care, what do you think it means?

Many thanks for completing this survey. Please put this questionnaire in the self-addressed envelope supplied and return it to your pharmacist.

Your effort is truly appreciated

Jaco du Toit

APPENDIX B

Questionnaire in Afrikaans

Geagte deelnemer

Ek is ‘n derdejaar MBA student by die Noordwes-Universiteit: Skool vir Besigheid en Korporatiewe bestuur is tans besig met die uitvoering van ‘n studie ter voltooiing van my MBA graad.

Die doel van hierdie vraelys is om die bewustheid en begrip van farmasiepraktyk, farmaseutiese dienste en farmaseutiese sorg vanuit die pasiënt se oogpunt te evalueer.

U deelname sal geen doelbewuste gevaar, risiko of skade vir u inhou nie. Die voltooiing van die vraelys behoort u nie langer as 10 minute te neem nie.

Alhoewel ek dankbaar sal wees as u die vraelys eerlik sal antwoord is u onder geen verpligting om die vraelys te voltooi nie en mag u op enige stadium onttrek. Sal u asseblief vir voltooide vraelys terug e-pos aan a.opperman@mweb.co.za U opinie sal absoluut konfidensieel gehou word.

Ten einde u identiteit geheim te hou word u versoek om ‘n persoonlike kode te skep in die eerste gedeelte van die vraelys. Hierdie kode wat u skep sal slegs aan u bekend wees, maar my in staat stel om tussen die deelnemers te onderskei.

Ek dank u vir u deelname en waardeer werklik u ondersteuning en tyd opgeneem.

Beste groete

Jaco du Toit

Afdeling A

U persoonlike kode, wat slegs aan u bekend sal wees, word soos volg opgemaak:

Kode (Persoonlik en konfidensieel)	Voorbeeld	U kode
1. Verskaf die eerste en laaste letters van die dorp/stad waarin u gebore is	Pretoria = PA	
2. Verskaf die eerste en laaste letters van u moeder se nooiensvan (haar van voordat sy getroud is)	Smith = SH	
3. Verskaf die eerste en laaste letter van u vader se noemnaam	Peter = PR	

Afdeling B

Biografiese inligting

Die onderstaande inligting word benodig vir betekenisvolle data analise. Merk die toepaslike blokkie met 'n kruisie (x). Antwoord asseblief al die vrae.

1	U ouderdom	Jare:	Maande:

2	Geslag:	1. Manlik	2. Vroulik

3	Ras:	1. Wit	2. Swart	3. Gekleurd	4. Indiër	5. Ander

4	Hoogste kwalifikasie	1. Minder as graad 12	2. Graad 12	3. Diploma/ graad	4. Nagraads

5	Maandelikse inkomste	R 0 tot R10000	R10000 tot R20000	R20000 tot R30000	R30000 tot R40000	Meer as R40000

Afdeling C

Gedragsinligting

Merk die toepaslike blokkie met ‘n kruisie (x). Antwoord asseblief al die vrae.

6	Wat was die rede vir u besoek aan die apteek vandag?	1. Akute voorskrif	2. Herhaal voorskrif	3. Oor die toonbank voorskrif	4. Ander

7	Weet u wat die naam van u apteker is?	1. Ja	2. Nee

8	Behoort u aan ‘n mediese fonds?	1. Ja	2. Nee

Afdeling D

Bewustheidsinligting

Antwoord asseblief al die vrae in die spasie verskaf.

9	Wanneer u apteker u medisyne resepteer, wat het u hom gesien doen?

10	Wat dink u doen u apteker wanneer u, u apteek besoek om ‘n voorskrif te resepteer?

11	Van watter dienste is u bewus wat u apteek verskaf (bv. bloeddruk toetsing cholesteroltoetsing, toediening van inspuitings)?

12(a)	Is u tevrede met die dienste wat u van u apteker ontvang?	1. Ja	2. Nee

12(b)	Indien nie, wat kan u apteker doen om groter tevredenheid by u teweeg te bring?

13(a)	Het u al gehoor van die term farmaseutiese sorg?	1. Ja	2. Nee

13(b)	Al het u nog nie van die term farmaseutiese sorg gehoor nie, wat dink u beteken dit?

Baie dankie vir u deelname aan die opname. Plaas asseblief u vraelys in die verskafde koevert en handig dit by u apteker in.

U bereidwilligheid word werklik waardeer.

Jaco du Toit

APPENDIX C

Age statistics: All respondents

Respondent	Years	Months	M/F		Fraction	Age
1	50	7	m	12	0.58	50.58
2	20	10			0.83	20.83
3	50	7	m		0.58	50.58
4	53	8			0.67	53.67
5	51	4	m		0.33	51.33
6	21	5			0.42	21.42
7	51	1			0.08	51.08
8	50	0	m		0.00	50.00
9	52	2	m		0.17	52.17
10	53	4			0.33	53.33
11	33	3			0.25	33.25
12	31	6			0.50	31.50
13	35	3			0.25	35.25
14	27	7			0.58	27.58
15	54	9	m		0.75	54.75
16	63	10			0.83	63.83
17	56	11			0.92	56.92
18	45	1	m		0.08	45.08
19	55	1			0.08	55.08
20	55	10			0.83	55.83
21	69	2	0		0.17	69.17
22	47	6	m		0.50	47.50
23	51	6			0.50	51.50
24	66	7			0.58	66.58
25	49	9			0.75	49.75
26	66	7			0.58	66.58
27	34	7			0.58	34.58
28	31	9			0.75	31.75
29	23	5			0.42	23.42
30	31	5	m		0.42	31.42
31	22	6			0.50	22.50
32	46	8			0.67	46.67
33	51	7			0.58	51.58
34	41	1	m		0.08	41.08
35	21	7	m		0.58	21.58
36	33	1	m		0.08	33.08
37	42	6	m		0.50	42.50
38	51	5			0.42	51.42
39	38	0	m		0.00	38.00

All respondents	
Ave	49.03
Std dev	14.74

40	44	0	m	0.00	44.00
41	32	1	m	0.08	32.08
42	47	0	m	0.00	47.00
43	51	7		0.58	51.58
44	38	3		0.25	38.25
45	61	3	m	0.25	61.25
46	90	0	m	0.00	90.00
47	25	0	m	0.00	25.00
48	49	1		0.08	49.08
49	49	9		0.75	49.75
50	68	10		0.83	68.83
51	38	3		0.25	38.25
52	51	7		0.58	51.58
53	51	4	m	0.33	51.33
54	50	7	m	0.58	50.58
55	50	7	m	0.58	50.58
56	48	10	m	0.83	48.83
57	54	0		0.00	54.00
58	27	7		0.58	27.58
59	72	8		0.67	72.67
60	60	1		0.08	60.08
61	49	9		0.75	49.75
62	87	4		0.33	87.33
63	56	2		0.17	56.17
64	25	10		0.83	25.83
65	71	8		0.67	71.67
66	71	9		0.75	71.75
67	46	3		0.25	46.25
68	50	1		0.08	50.08
69	54	4		0.33	54.33
70	50	1		0.08	50.08
71	25	0	m	0.00	25.00
72	25	6		0.50	25.50
73	69	10	m	0.83	69.83
74	64	9		0.75	64.75
75	46	3		0.25	46.25
76	44	3		0.25	44.25
77	56	2	m	0.17	56.17
78	49	4		0.33	49.33
79	47	6	m	0.50	47.50
80	51	3		0.25	51.25
81	43	2	m	0.17	43.17
82	61	1	m	0.08	61.08
83	67	0		0.00	67.00
84	48	0		0.00	48.00

85	90	8		0.67	90.67
86	36	8	m	0.67	36.67
87	44	3		0.25	44.25
88	31	4	m	0.33	31.33
89	47	10		0.83	47.83
90	52	11		0.92	52.92
91	84	3	m	0.25	84.25
92	45	6		0.50	45.50
93	53	2	m	0.17	53.17
94	40	0		0.00	40.00
95	56	10	m	0.83	56.83
96	54	11		0.92	54.92
97	54	5		0.42	54.42
98	53	2	m	0.17	53.17
99	51	11		0.92	51.92
100	45	6		0.50	45.50

APPENDIX D

Age statistics: **Male vs Female**

Respondent	Years	Mths	M/F		Fraction	Age
1	50	7	m	12	0.58	50.58
3	50	7	m		0.58	50.58
5	51	4	m		0.33	51.33
8	50	0	m		0.00	50.00
9	52	2	m		0.17	52.17
15	54	9	m		0.75	54.75
18	45	1	m		0.08	45.08
22	47	6	m		0.50	47.50
30	31	5	m		0.42	31.42
34	41	1	m		0.08	41.08
35	21	7	m		0.58	21.58
36	33	1	m		0.08	33.08
37	42	6	m		0.50	42.50
39	38	0	m		0.00	38.00
40	44	0	m		0.00	44.00
41	32	1	m		0.08	32.08
42	47	0	m		0.00	47.00
45	61	3	m		0.25	61.25
46	90	0	m		0.00	90.00
47	25	0	m		0.00	25.00
53	51	4	m		0.33	51.33
54	50	7	m		0.58	50.58
55	50	7	m		0.58	50.58
56	48	10	m		0.83	48.83
71	25	0	m		0.00	25.00
73	69	10	m		0.83	69.83
77	56	2	m		0.17	56.17
79	47	6	m		0.50	47.50
81	43	2	m		0.17	43.17
82	61	1	m		0.08	61.08
86	36	8	m		0.67	36.67
88	31	4	m		0.33	31.33
91	84	3	m		0.25	84.25
93	53	2	m		0.17	53.17
95	56	10	m		0.83	56.83
98	53	2	m		0.17	53.17
2	20	10			0.83	20.83
4	53	8			0.67	53.67
6	21	5			0.42	21.42

Male	
Ave	48.01
Std dev	14.50

Female	
Ave	49.60
Std dev	14.96

7	51	1	0.08	51.08
10	53	4	0.33	53.33
11	33	3	0.25	33.25
12	31	6	0.50	31.50
13	35	3	0.25	35.25
14	27	7	0.58	27.58
16	63	10	0.83	63.83
17	56	11	0.92	56.92
19	55	1	0.08	55.08
20	55	10	0.83	55.83
21	69	2	0.17	69.17
23	51	6	0.50	51.50
24	66	7	0.58	66.58
25	49	9	0.75	49.75
26	66	7	0.58	66.58
27	34	7	0.58	34.58
28	31	9	0.75	31.75
29	23	5	0.42	23.42
31	22	6	0.50	22.50
32	46	8	0.67	46.67
33	51	7	0.58	51.58
38	51	5	0.42	51.42
43	51	7	0.58	51.58
44	38	3	0.25	38.25
48	49	1	0.08	49.08
49	49	9	0.75	49.75
50	68	10	0.83	68.83
51	38	3	0.25	38.25
52	51	7	0.58	51.58
57	54	0	0.00	54.00
58	27	7	0.58	27.58
59	72	8	0.67	72.67
60	60	1	0.08	60.08
61	49	9	0.75	49.75
62	87	4	0.33	87.33
63	56	2	0.17	56.17
64	25	10	0.83	25.83
65	71	8	0.67	71.67
66	71	9	0.75	71.75
67	46	3	0.25	46.25
68	50	1	0.08	50.08
69	54	4	0.33	54.33
70	50	1	0.08	50.08
72	25	6	0.50	25.50
74	64	9	0.75	64.75
75	46	3	0.25	46.25
76	44	3	0.25	44.25

78	49	4	0.33	49.33
80	51	3	0.25	51.25
83	67	0	0.00	67.00
84	48	0	0.00	48.00
85	90	8	0.67	90.67
87	44	3	0.25	44.25
89	47	10	0.83	47.83
90	52	11	0.92	52.92
92	45	6	0.50	45.50
94	40	0	0.00	40.00
96	54	11	0.92	54.92
97	54	5	0.42	54.42
99	51	11	0.92	51.92
100	45	6	0.50	45.50