An analysis of the decisions regarding the dispensing of generic prescription drugs by selected independent pharmacies

I.S. Pretorius

12987719

B. Pharm (2008)

M.Sc. Pharm - Pharmaceutical Chemistry (2012)

Dissertation submitted in partial fulfillment of the requirements for the degree Master in Business Administration at the Potchefstroom Campus of the North-West University

Supervisor: Mr. Johan Jordaan

November 2014

ABSTRACT

The generic prescription drug market is continuously growing as the patents of many originator drugs are expiring. With a potential global market value of US$1,2 trillion, many companies compete for market share. The retail pharmacy is the outlet where the products of these companies are sold to the public. However, public access to prescription drugs is restricted by law. As the custodians of medicine, pharmacists have to ensure that medicine is used safely and correctly. By means of generic substitution, the pharmacist can offer patients quality medicine at a cost effective price. Due to the many generic pharmaceutical companies, the pharmacist has plenty of options when it comes to generically substituting medicine. This study attempted to identify the factors that influence the pharmacist to offer a patient the generic drug of one company instead of another.

A sample of fifty pharmacists from selected independent retail pharmacies, in the Pretoria region, successfully completed a questionnaire that tested nine factors that were identified as influencing the decisions of pharmacists during the dispensing process. A four-point Likert scale was used to measure the in influences. The influence of medical representatives was rated as very high (3,00 standard deviation (SD) 0,78) and also the biggest influence of the nine tested variables. The influences of medical aids (2,88 SD 0,87), company reputation (2,86 SD 0,87), differentiation between chronic diseases (2,82 SD 1,07) and the pharmacist's personal preference (2,76 SD 0,97) were rated as high influences. Drug price was rated as a slightly high influence (2,62 SD 0,93). Lesser influences were that of drug availability (2,41 SD 1,00) and the influence of the prescribing doctor (2,34 SD 0,4). The lowest influence according to our sample is that of the patient (2,23 SD 0,94). A factor analysis revealed six constructs that tested reliable for the purpose of this study (Cronbach's alpha coefficient of higher than 0,5): Cost of generics (0,791), perceived quality of generic drugs (0,722), product knowledge (0,674), influences of the pharmaceutical company (0,642), effect of brand loyalty (0,534) and spur-of-the-moment-influences (0,563).

Key words: Generic substitution, South Africa, retail pharmacy, prescription drugs, health care.

ACKNOWLEDGMENTS

Firstly, I want to thank the Lord for giving me the ability to study, do research and living life to my fullest potential. I am grateful for His protective Hand over me the past three years.

My wife Lijscha, your support carried me through this degree. You inspired me to enrol for this MBA and never doubted in my ability. All my love is with you (and the two little ones that are on their way).

To my parents, thank you for your continual motivation and support through all my years of study and for setting me an excellent example of how to live life.

Mr Johan Jordaan, my supervisor, for letting me do my research at my own pace while time and again nudging me in the right direction. I appreciate all the effort, insight and valuable information you shared with me, especially regarding the statistical analysis.

Mrs Wilma Breytenbach from the North-West University Statistical Consulting Services, thank you for your guidance with the questionnaire and the statistical analysis.

The PBS, thank you for the financial support during my final year.

To all the respondents who took the time during their busy schedules to complete the questionnaire – thank you for your cooperation.

To the PUKKE, for an awesome eleven years. I was moulded by your knowledge.

TABLE OF CONTENTS

ABSTRACT i

ACKNOWLEDGMENTS ii

TABLE OF CONTENTS iii

CHAPTER 1 NATURE AND SCOPE OF THE STUDY 1

1.1 Introduction 1

1.2 Problem Statement 1

1.3 Objectives of this study 3

1.3.1 Primary Objective 3

1.3.2 Secondary Objectives 3

1.4 Scope of Study 3

1.5 Research Methodology 3

1.5.1 Literature Study 3

1.5.2 Empirical Study 4

1.5.2.1 Quantitative Study 4

1.5.2.2 Qualitative Study 4

1.6 Limitations of the Study 4

1.7 Layout of this Study 4

CHAPTER 2 LITERATURE STUDY 6

2.1 Introduction 6

2.2 The South African Retail Pharmacy Environment 6

2.3 The Dispensing Process Explained 7

2.4 Identifying the Factors that Influence the Decision Making Process of the Pharmacist 9

2.4.1 Drug Availability 9

2.4.2 Medication Price 10
2.4.3 Medical Representatives 11
2.4.4 The Prescribing Doctor 11
2.4.5 Third Party Insurance (Medical Aid) Protocol 12
2.4.6 Company Reputation 12
2.4.7 The Patient 13
2.4.8 Chronic Conditions that Necessitates Caution Regarding Generic Substitution 14
2.4.9 The Pharmacist's Personal Preference 15
2.5 Chapter Summary 15
CHAPTER 3 EMPIRICAL RESEARCH METHODOLOGY 17
3.1 Introduction 17
3.2 Research Design 17
3.2.1 Preparation of the Measuring Instrument 17
3.2.2 The Questionnaire 18
3.2.3 Sampling Method 19
3.3 Data Analysis 19
3.4 Chapter Summary 20
CHAPTER 4 RESULTS AND DUSCUSSIONS 21
4.1 Introduction 21
4.2 Demographic Results 21
4.2.1 Age 21
4.2.2 Gender 21
4.2.3 Name of Pharmacy Group with whom Employed 22
4.2.4 Years Retail Experience after Community Service 22
4.2.5 The Perceived Economic Class of the Majority of Clients 23
4.3 Statistical Data Results 23
4.3.1 Descriptive Statistics for the Influence of Drug Availability 24

4.3.2 Descriptive Statistics for the Influence of Price 25
4.3.3 Descriptive Statistics for the Influence of Medical Representatives 25
4.3.4 Descriptive Statistics for the Influence of the Prescribing Doctor 27
4.3.5 Descriptive Statistics for the Influence of Third Party Insurance Protocol 27
4.3.6 Descriptive Statistics for the Influence of Company Reputation 28
4.3.7 Descriptive Statistics for the Influence of the Patient 29
4.3.8 Descriptive Statistics for the Influence of Chronic Conditions that Necessitates Caution Regarding Generic Substitution 30
4.3.9 Descriptive Statistics for the Influence of the Pharmacist's Personal Preference 31
4.4 Validity Testing 33
4.4.1 Results from Factor Analysis 34
4.4.1.1 Construct 1 – Cost of Generics 34
4.4.1.2 Construct 2: Perceived Quality of Generic Drugs 36
4.4.1.3 Construct 3: Product Knowledge 39
4.4.1.4 Construct 4: Influences by the Pharmaceutical Company 40
4.4.1.5 Construct 5: Effect of Brand Loyalty 42
4.4.1.6 Construct 6: Spur-of-the-Moment Influences 43
4.4.2 Results from Qualitative Study 52
4.4.2.1 Most Trusted Generic Pharmaceutical Companies 52
4.4.2.2 Reasons for Trusting a Generic Company 53
4.4.2.3 Least Trusted Pharmaceutical Generic Pharmaceutical Companies 54
4.4.2.4 Reasons for Distrusting Generic Pharmaceutical Companies 54
4.5 Chapter Summary 55
CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS 57
5.1 Introduction 57
5.2 Conclusions from the Literature Study and the Empirical Study 57
5.2.1 The Influence of Drug Availability 57
5.2.2 The Influence of Medication Price 58

5.2.3 The Influence of Medical Representatives 58
5.2.4 The Influence of the Prescribing Doctor 59
5.2.5 The Influence of Third Party Insurance (Medical Aids) Protocol 59
5.2.6 The Influence of Company Reputation 60
5.2.7 The Influence of the Patient 60
5.2.8 The Influence of Chronic Conditions that Necessitates Caution Regarding Generic Substitution 61
5.2.9 The Influence of the Pharmacist's Personal Preference 61
5.3 Limitations of the Study 62
5.4 Recommendations for Future Studies 62
5.5 Summary 62
Bibliography 64

LIST OF TABLES

Table 4-1 Years of Retail Experience after Community Service 22

Table 4-2 Interpretation of Mean Values 24

Table 4-3 Drug Availability 24

Table 4-4 Influence of Price 25

Table 4-5 Influence of Medical Representatives 26

Table 4-6 Other Information regarding Medical Representatives 26

Table 4-7 Influence of the Prescribing Doctor 27

Table 4-8 Influence of Third Party Insurance Protocol[a] 28

Table 4-9 Influence of Third Party Insurance Protocol[b] 28

Table 4-10 Influence of Company Reputation 29

Table 4-11 Influence of the Patient[a] 29

Table 4-12 Influence of the Patient[b] 30

Table 4-13 Influence of the Chronic Conditions 31

Table 4-14 Pharmacist's Preference 32

Table 4-15 Other Influences Regarding the Pharmacist's preferences 33

Table 4-16 Construct 1: Cost of Generics 35

Table 4-17 Validity of Construct 1 36

Table 4-18 Construct 2 – Perceived Quality of Generic Drugs 37

Table 4-19 Validity of Construct 2 39

Table 4-20 Construct 3 – Product Knowledge 39

Table 4-21 Validity of Construct 3 40

Table 4-22 Construct 4 – Influences by the Pharmaceutical Company 41

Table 4-23 Validity of Construct 4 41

Table 4-24 Construct 5 – Effect of Brand Loyalty 42

Table 4-25 Validity of Construct 5 43

Table 4-26 Construct 6 – Spur-of-the-Moment Influences 43

Table 4-27 Validity of Construct 6 44

Table 4-28 Independent T-test of Construct 1 45

Table 4-29 Results from Independent t-Test of Construct 1 50

Table 4-30 Summary of Influences According to the Descriptive Statistics 55

LIST OF FIGURES

Figure 4-1 Pie chart indicating the distribution of groups for whom the respondents work for 22

Figure 4-2 Pie chart indicating the rearranged age distribution of the sample 23

Figure 4-3 Scree plot of the eigenvalue versus component number 33

Figure 4-4 Companies indicated by sample as most trusted 52

Figure 4-5 Reasons given for trusting a generic company 53

Figure 4-6 Companies indicated by sample as the least trusted 54

CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1.1 Introduction

This study focuses on the decision making process that contributes to the dispensing of generic prescription drugs. The pharmacist is identified as an important role player in the eventual choice of pharmaceutical brand. The factors that influence the pharmacist to stock and dispense certain generic medicine brands instead of others were explored. In this chapter the problem statement will be introduced, the primary and secondary objectives of the study will be discussed together with the methodology used to achieve these objectives. The limitations of this study are also revealed. In conclusion, an overview of the mini-dissertation is given by briefly describing the contents of each chapter.

1.2 Problem Statement

Prescription drugs are a major global industry, worth an estimated US$1.2 trillion a year and the potential to grow by a further US$200 billion over the next two years. This sales figure incorporates both the market value of branded drugs and generic drugs but also a 12% figure of other pharmaceutical sales which is beyond the scope of this study. Currently, the value distribution lies in favour of the branded drugs which make up 61% of the global sales in comparison to the generic market's 27% (IMS Institute for healthcare informatics, 2013). In 2011, some of the bestselling branded drugs accounted for about US$255 billion in annual sales. However, between 2011 and 2016, twenty of these blockbuster drugs will go off-patent, opening the door for manufacturers of generic drugs to produce them at a fraction of the original sales price (Fischer, 2011). This will see a shift in the value distribution between branded and generic drugs with generic drugs growing to an estimated 36% of the total global sales in 2017.

Several companies are ready to take advantage of this pending mass patent expiration. Four of the world's largest generic companies, Teva, Mylan, Sandoz and Zentiva, who account for nearly 40% of the world wide generic sales, have already introduced their versions of the cholesterol lowering drug Lipitor® (the best-selling drug ever) which recently lost its patent (Harding, 2010; Fischer, 2011). In South Africa, the patent expiration of Pfizer's Lipitor® led to a 50% loss in market share. This can be attributed to the difference between its price relative to that of the competing generics' (Van der Merwe Smit & Bredenkamp, 2013:116). Lipitor sold for about R300 for a month's worth of medication. The first generic sold for R115 and the second

generation generic for R85. In 2013, Adcock-Ingram introduced their generic equivalent at R45 resulting in a price war and an overall price reduction of this particular drug range. Thus, a cut-throat industry exists in which several manufacturers introduce drugs to the market with essentially the same function at more or less the same price.

Nevertheless, despite the highly competitive and regulated environment that exists in the generic prescription drug market, many companies are continuously trying to enter the playing field. How does a generic company then distinguish themselves from the rest? The answer to this question is a bit complicated and lies in the concept of generic substitution. Generic substitution is defined as the dispensing of a chemically equivalent but less expensive drug in place of a brand-name product that has an expired patent (Stedman's Medical Dictionary, 2006).

However, patients are usually unaware of the different available generic substitutions to any particular brand-name drug. Although the choice of drug (be it the original brand or a generic brand) is a privilege of the patient's own preference, it is influenced by various factors such as the advice they receive from their medical practitioners, pharmacists, the sales price or medical aid guidelines. One should also keep in mind that the Medicines and Related Substance Control Act (101 of 1965) prohibits pharmaceutical companies to advertise their portfolio of prescription drugs to the public although it is allowed to market it to professional health care givers. Consequently, customer loyalty to a brand seldom exists before the first sale. Only after their first purchase does a customer start relating to a given brand.

Thus, the drive behind the sale of any specific prescription drug does not follow a pure supply and demand model but rather a model that is influenced by other factors. Conventional consumer behaviour models are not applicable in the dispensing of prescription drugs because the patient (consumer) is not actively shopping for medicine. It is the result of an illness that causes the need (rather than a demand) for medicine to be consumed.

From a health professional's perspective, the doctor is the initiator of treatment and influences the type of medication the patient will eventually be taking. Although the doctor has some influence on the brand of medicine to be dispensed (as explained in chapter 2), the pharmacist is the seller of the medicine and decides which brands to dispense and which not to dispense. By taking the patient's choice out of the equation the generic drug companies are left with the prescribing doctor and the dispensing pharmacist as the two main promoters through which their products can be channelled. In this study we will attempt to identify the factors that influence pharmacists to choose one generic product above another in the field of prescription drugs.

1.3 Objectives of this study

1.3.1 Primary Objective

The primary objective of this research was to develop an understanding of the factors that influences the decision making process of the dispensing pharmacist in terms of generic prescription drugs. The focus was on factors that are influential in differentiating between the various generic brands.

1.3.2 Secondary Objectives

In order to determine the primary objective, the following secondary objectives were explored by looking at how it influences the dispensing pharmacist in making a choice of generic drug. The factors identified as having an influence on the pharmacist's dispensing choice are:

1. The influence of drug availability.
2. The influence of medication price.
3. The influence of medical representatives.
4. The influence of the prescribing doctor.
5. The influence of third party insurance (medical aids) protocol.
6. The influence of company reputation.
7. The influence of the patient.
8. The influence of chronic conditions that necessitates caution regarding generic substitution.
9. The influence of the pharmacist's personal preference.

1.4 Scope of Study

This study investigated the generic prescription drug market in South Africa from a retail pharmacy perspective. It touched on certain buyer behaviour principles and specifically those that involved retail pharmacists. Selected independent pharmacies in Pretoria were the targeted setting.

1.5 Research Methodology

1.5.1 Literature Study

A literature study was conducted to better describe the scope of the generic prescription drug market and to give the reader some background on South African regulations regarding prescription drugs. It also aims to inform the reader about the dispensing process in retail pharmacies. By orientating the reader on these aspects we attempted to provide a better

understanding of the challenges that producers of generic prescription drugs face in order to distinguish themselves from one another and gain respectable market share.

1.5.2 Empirical Study

1.5.2.1 Quantitative Study

In order to define the relationship between the differentiation and selection of generic drugs and the various factors contributing to it, a questionnaire was designed and distributed amongst pharmacists practicing in selected independent pharmacies in the South African private retail sector. It examined the factors that influence their decision to suggest one generic alternative above that of another company.

Primary data will be collected during the surveys while secondary data will be used in the literature study, discussions and conclusion.

1.5.2.2 Qualitative Study

In conjunction with the quantitative survey, a qualitative survey was also done to add some value and perspective to the study.

1.6 Limitations of the Study

To exactly determine all the variables that influence the final choice of generic prescription drugs were a quite daunting task as there are many factors that can also have indirect influence on the decision making process. Some of the identified influences are described in section 1.3.2 but many other factors might also play a role such as the mood of the pharmacist on a particular day or the knowledge and perceptions the patient has about generic drugs. Furthermore, the companies who manufacture generic prescription drugs also craft strategies to boost the sales of their portfolio of products.

1.7 Layout of this Study

This study is divided into five chapters:

Chapter one serves as an introduction to the content of the paper and presents the opportunity that lies in the generic prescription drug market but also introduces the problem statement that guides the train of thought for our arguments made in our research. It also discusses the research goals, research methods and the limitations of our study.

Chapter two orientates the reader about the prescription drug market and the process of prescribing and dispensing medicine. It reflects literature content on the topic of generic substitution, as well as elaborating on the nine fields that was identified as influencing the

pharmacist during the dispensing process. Some regulatory factors, the Pharmacy Act and the Medicines and Related Substance Control Act are briefly explained in the context of our study.

Chapter three reports the research method that was employed to achieve the goals of the research project. Aspects that are covered include the research design, measuring instruments that will be used to gather data after which data analyses techniques will be discussed.

Chapter four reports the results of the study. The results will then be discussed by focusing on how it relates to our problem statement as well as the extent to which it satisfies the primary and secondary objectives.

Chapter five discusses the conclusion reached resulting from the study as well as any recommendations that can be made to the management of pharmaceutical companies regarding advertising strategy and recommendations for future studies.

CHAPTER 2

LITERATURE STUDY

2.1 Introduction

As a pharmacist, I am regularly approached by medical representatives (MR's) from various pharmaceutical production companies of generic medicine. All of them are professional, approachable, extremely friendly and well informed about their products. They do their best to appease you with the hope that you will choose their product above that of a competitor's and indeed, there are many generic drug competitors. The National Association of Pharmaceutical Manufacturers (NAPM), a non-profit organisation consisting of pharmaceutical manufacturers and distributors, has a membership of 24 companies of which ten are specialising in the production and distribution of generic drugs. Several more companies exist. In fact, three of South Africa's four biggest generic drug manufacturers are not even included on the list (NAPM, 2014). Thus, for many of the treatments for the most prominent chronic or acute illnesses, there are ten or more different generic options to choose from.

How does it then happen that one generic drug is chosen above another? The answer to this question is influenced by the many intermediaries in the process that starts with the prescribing doctor and ends with the patient receiving the medicine from a pharmacist. Although the final decision regarding which drug to use lies with the patient, external factors like the guidance of the doctor, pharmacist and medical aid protocol will play a major part in the ultimate choice of generic drug. By understanding these influences, pharmaceutical companies that specialise in the manufacturing of generic prescription drugs may be able to streamline their marketing plan and improve their ability to capture market share.

2.2 The South African Retail Pharmacy Environment

The South African healthcare system is divided into the public and the private sector of which fifty two percent of the total health expenditure can be attributed to the latter. The private health sector distinguishes predominantly between the insured patients using medical schemes (81%) and those who finance their health privately with out-of-pocket payments (14%) (WHO, 2014). The South African retail pharmacy falls under the private health sector and will be the focus of this study. Furthermore, the South African retail pharmacy market can be divided into corporate pharmacies, independent pharmacies and courier pharmacies. Historically, only pharmacists were allowed to own a retail pharmacy as dictated by section 22A of the Pharmacy Act (53 of 1974). This act was amended in 2003 because it caused pharmacists to have a monopoly on

pharmacy ownership. This opened the pharmaceutical retail market for big chain corporate companies like Clicks, Dischem, Pick 'n Pay and Shoprite. Independent retail pharmacies, although they are struggling to compete with the big chain pharmacies, are currently controlling the biggest share of the South African market in value (~40%) and in volume (~50%) (IMS, 2014). Our research is exclusively directed towards the pharmacists working in independent pharmacies.

Unlike ordinary consumable products, scheduled drugs may not be sold or marketed directly to the public (Medicines and Related Substance Control Act, 101 of 1965). For the purpose of this study, unless stated otherwise, "drugs", "medicine" or any other referral to a treatment regime will imply schedule 3 to schedule 6 drugs. Except for some schedule 3 anti-inflammatory and pain medication (and only an amount that will cover five days of treatment), these drugs cannot be acquired by the public without a legal prescription from a medical doctor.

In a pharmacy, the medicine are kept in the dispensary where the layout is constructed as such that only authorised personnel has direct access to it (SAPC, 2010). The consumer doesn't shop for an anti-biotic or hypertension drugs in the same way they would do for a new car or a plasma television. When it comes to the diagnosis and the dispensing of medicine, they rely on the knowledge of the doctor and the pharmacist. The demand for drugs is therefore not driven by the "want" thereof but rather the need caused by an illness. Medical expenses are thus "grudge expenses". In a review, Auton (2004:19) states that the consumer is not engaged in the true economic cost of the drug treatment at the point of consumption. Although a patient is the consumer, he is not the chooser of the drugs taken.

2.3 The Dispensing Process Explained

The flow of events that leads to the eventual dispensing of a prescription drug starts with the doctor diagnosing an illness and prescribing a drug treatment. For example, in the case of high cholesterol, the doctor could write the prescription in three ways:

1. The name of the chemical molecule e.g. atorvastatin, the active substance that lowers cholesterol production, together with the dosage strength and instructions,
2. The branded name of the atorvastatin molecule, Lipitor®, or
3. Any of the generic alternatives of the atorvastatin molecule e.g. Lipogen®, Aspavor® or Adco-Atorvastatin®.

Next, the patient will take the prescription to a pharmacist who then interprets it and dispenses the medication. Under section 22F (Generic substitution) of the Medicines and Related Substance Control Act (101 of 1965), the pharmacist has to inform the patient about the availability of a generic alternative to a branded drug and dispense the alternative should the

patient give consent. Sometimes, the prescriber forbids generic substitution via a written instruction on the prescription in which case the pharmacist has to note it, inform the patient and dispense whatever is written on the prescription. No generic substitution is allowed in such a case. Also, the pharmacist is not allowed to substitute an interchangeable multi-source medicine with one that has a higher retail price than the prescribed drug.

However, the choice of generic substitution should not only be driven by cost saving. Professional intervention by the pharmacist involves assessing the advisability of substituting the prescribed product and then making the most suitable selection of generic drug. A few instances call for caution when generic interchange is considered, for example where patients are already stabilised on a specific drug, when drugs with a narrow therapeutic index (concentration closeness of an effective dosage and a toxic dosage) are used or when the generic change (change in colour and shape of the tablet/capsule or packaging) could discourage the patient to comply with their treatment, especially in elderly or mentally challenged patients. In all cases, the pharmacist must act in the best interest of the patient (Black, 2013:37).

When a pharmacist receives a prescription from a patient, a phase of interpretation and evaluation begins:

- Interpreting the type of treatment and the prescribers intentions,
- Identifying the medicine,
- Checking the pharmaceutical formulation (capsule, tablet, suspension, cream, suppository etc.),
- Checking the dosage strength and methods of administration (oral, rectal, topical or parenteral),
- Determining the duration of treatment (acute or chronic),
- Evaluating the appropriateness of the individual and the indications for which the medication is prescribed,
- Inspecting for any abnormalities in the prescription,
- Taking a brief patient history to determine the use of any other concurrent medication or if any previous allergic reaction to any of the prescribed medication has occurred.

Only after the above has been done, does the pharmacist start considering the brand of drug. What influences the pharmacist at this stage to suggest one brand of generic drug over another?

2.4 Identifying the Factors that Influence the Decision Making Process of the Pharmacist

In a pilot study for this research, a few academics that are lecturing at the School of Pharmacy at the Potchefstroom campus of the North West University (two of them still actively practicing in the field of retail pharmacy), were contacted via email to get their inputs on the factors that influence the pharmacist the most during this decision making process. The questions posed to them were straight forward:

1. What makes a generic drug successful?
2. Where in the dispensing process (beginning where the doctor writes the prescription and ending with the pharmacist dispensing the drugs), lies the greatest influence in the choice of generic drug?
3. What determines which company's drug will be dispensed?

By analysing these answers, nine significant factors were identified as being influential in the pharmacist's dispensing choice and were included in the questionnaire that served as the measuring instrument.

2.4.1 Drug Availability

Medicine shortages are a global problem. In 2013, a report was published by the International Pharmaceutical Federation (IPF) at the International Summit on Medicine Shortages wherein it was stated that supply problems contributed more to the problem than market demand fluctuations (IPF, 2013). The suppliers of generic medicine are in most cases the culprits (IMS, 2011). A pharmaceutical company undergoes an out of stock situation when:

1. A product recall by a regulatory organisation such as the South African Medicine Control Council (MCC) or the United States Food and Drug Administration (FDA) is made. This happens if it is determined that a batch or batches of a product are sub-standard either because of contaminants or instability of the ingredients. Exposed administrative shortcomings in the registration application or patient leaflets also causes a hold on any further distribution of a drug. This situation is usually only limited to the pharmaceutical company involved.
2. A shortage in the supply of any of the ingredients used in the formulation of a drug occurs. For example: the supplier of an active pharmaceutical ingredient (API) experience problems which results in a shortage that affects all of the pharmaceutical companies connected to them through their supply chain. Switching suppliers is a stretched out and very time consuming process for it must first be approved by a regulatory organisation. The MCC reported a backlog of 2114 application in June 2009

which resulted in the registrar calling for a Back Log Task Team to assess and address this situation. By the conclusion of the project and in September 2007 this number stood at 1466 (MCC, 2010). Thus, it is better for the pharmaceutical companies to just wait out the API shortage than to change its supplier.

3. Tenders are awarded for the production of certain drugs to single companies. This may force other companies to lower the production of their similar drug due to a lower demand. In the event that a single producing company fails to deliver to the demand, shortages of a certain drug will occur. These shortages can increase due to the unpredictability of health trends which complicates the demand estimation e.g. a sudden outbreak of an epidemic (IPF, 2013).

Notwithstanding the fact that stock outs hold significant health threats for the public that depend on certain life sustaining drugs, it also significantly influence buyer behaviour in terms of customer satisfaction during the decision making process and the subsequent choice of store (Fitzsimons, 2000). The higher the customer associate with the out-of-stock drug, the more negatively they react to the stock out. This creates dissatisfaction with the decision making process and increases the likelihood of changing their pharmacy from which they collect their medication even though the fault may not lie with the pharmacy's procurement.

Similarly, the findings of Fitzsimons can be applied to the dispensing pharmacist. Consider again the dispensing process with reference to section 2.3. Notice how the patient never actually participates in the "shopping" experience. The pharmacist, however, chose to stock a specific brand drug. Should this brand go out of stock, an awkward situation occurs in which the patients has to be told why the prescribed drug can't be dispensed. Subsequently it might cause the pharmacist to stop stocking the drugs of companies that go out-of-stock regularly.

2.4.2 Medication Price

The access to quality health care is one of the barriers the majority of South Africans, especially those in the lower to middle income groups, have to face each day. Affordability is one of the main obstacles to quality health care. Due to a lack of allocated resources in the public sector, most citizens aspire to visit private health care institutions thus creating a bigger demand for these and creating an ever increasing gap between the public and the private health sectors (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana & Chersich, 2011:120). Unlike the private hospitals and specialist doctors, prescription medicine is governed by a fixed price or Single Exit Price (SEP) that was instated by former Minister of Health, Manto Tshabalala-Msimang in 2008 (Medicines and Related Substance Control Act 101 of 1965). This act is amended annually to increase the SEP in accordance with the South African inflation rate.

Quality is often associated with high costs. Indeed, the cost of developing a new (novel) drug ranges between $92 million and $883.6 million in cash expenses (Morgan, Grootendorst, Lexchin, Cunningham & Greyson, 2012). The company who owns the patent rights of an innovator drug uses the protection granted by the patent to salvage the costs they endured during the development of the drug. Upon the expiration of the originator drug's patent and the resulting influx of generic drugs to the market, a weighty shift in the market share occurs (Dylst & Simoens, 2011).

Generic drugs are usually sold at much lower prices than the originator. In fact, the greater the price differences relative to the originator, the bigger the market penetration of the generic drug. Additionally, the price of generic drugs falls even lower as more generic alternatives become available for a specific drug molecule (Bredenkamp, 2011). A price drop in medicine, due to the increasing use generic drugs, of between 21% and 44% has been observed in some European countries (Dylst & Simoens, 2011).

2.4.3 Medical Representatives

In a study of the perceptions and prescribing habits of Greek physicians, it was determined that sales representatives of pharmaceutical companies were considered the second most important source of information after publications such as peer reviewed journals and medical text books (Tsiantou, Zavras, Kousoulakou, Geitona, & Kyriopoulos, 2009). It was however revealed that MR's tend to only focus on the advantages of taking their drugs and do not inform thoroughly about the side-effects.

Doctors and pharmacists from Ireland, a country which has historically had very low generic drug usage, sited the interactions with MR's as influential in the success (or lack thereof) of generic drugs (Dunne, Shannon, Hannigan, Dunne & Cullen, 2014:221).

2.4.4 The Prescribing Doctor

In section 2.3, the various ways in which the doctor can write a prescription was highlighted. Due to South Africa's favourable generic drug policy, many doctors have become accustomed to prescribing a generic brand by name, instead of the originator drug. In fact, some generic brands have built such big brand names, that the originator is often rarely prescribed at all. Examples are Coxflam® (generic of the anti-inflammatory drug, Mobic®), Cilift® (generic of the anti-depressant drug, Cipramil®) and Altosec® (generic drug of gastro-oesophageal reflux disease, Losec®).

Although this study will be from the perspective of the dispensing pharmacist, it is worth mentioning some of the factors that influence doctors' prescribing habits. Drug information such as appearance of side-effects, drugs being withdrawn from the market and the launch of new

drugs have been shown to alter the medicine choices doctors make. Also, the cost of drugs and the patient's medical aid benefits significantly altered their drug choice. Interestingly, the effect of the representatives of pharmaceutical companies doesn't seem to play any great influence on the doctor's choice of drug (Tsiantou *et al.*, 2009).

A qualitative study by Patel, Gauld, Norris and Rades (2012:5), identified two factors: cost to the patient and the reputation of the company to be influential in the prescribing habits of doctors.

2.4.5 Third Party Insurance (Medical Aid) Protocol

Payment for medication occurs either by means of a private transaction where the patient incurs an out-of-pocket expense or via a third party insurer (medical aid). In South-Africa, between 11%-17% of the population make use of a medical aid. This number has grown significantly between 2000 and 2012; from 6,7 million beneficiaries to 8,7 million (Harris et al., 2011:120; CMS, 2013).

South Africa's 92 registered medical schemes offer its clients an average of 3.3 benefit options per scheme (CMS, 2013). More expensive options provide its clients a wider range of medical treatments and benefits, while more cost effective options tries to accommodate for clients in lower income classes. The medical insurance industry continuously tries to cut down on their expenses. One strategy is to structure their payment policy to such an effect that patients who qualify for chronic drug benefits will only be fully reimbursed to the amount of a predetermined medicine reference price. Usually, this price matches that of one of the cheapest generic drugs in a specific treatment class. In the event that a patient insists on taking the originator drug (or any generic alternative that is priced higher than the reference price), a co-payment would be incurred which will have to be settled by an out of pocket expense. Some medical aid options (although by far the minority) obligate their clients to use only the generic drug of a contracted pharmaceutical company and any other alternative will have to be paid by the patient in full. The drug-use patterns of patients who are part of a "generic-only" medical aid option are thus significantly changed (Christian-Haman, Emons & George, 2004).

2.4.6 Company Reputation

Patel et al. (2012:5), revealed some internally driven beliefs held by medical practitioners regarding drugs from the Eastern countries such as India and China. There was a general feeling that medicine from these countries was inferior to European produced drugs. Whereas European drug companies pride themselves on superior manufacturing quality and regulatory standards, some Indian companies where found guilty of purposely selling sub-standard drugs to countries with low to non-existing regulatory practices. In one case, the drugs of an Indian

generic company were determined to contain glass contaminants in its batches (Bate, Ginger, Aparna & Amir, 2014).

Although it is necessary to provide low income countries with affordable medicine, the supply of sub-standard drugs will only increase the disease burden due to ineffective treatment of illnesses and the potential development of multi drug resistant bacteria strains. For the producers of generic drugs, it is crucial that the medical community is confident in their products. This is often determined by the positive health outcomes of the patients being treated by a specific generic drug.

2.4.7 The Patient

Igbinovia (2007:6) researched the effect of race, gender, age, level of education, income, cost and the perception of quality and safety had on the dispensing of generic medicine to South African patients. He highlighted the fact that socio-economic factors do have a significant influence on the dispensing of generic drugs versus a branded drug.

The quality, cost and safety, in this order, was identified as the biggest reasons for consumers to choose a generic drug. Brand loyalty and drug availability was not reckoned significant influences. Statistically relevant variables that influence the use of generic medicine or not was, age, quality (the respondents perception of thereof), earning more than R20 000 per month and education, ranging from incomplete secondary to tertiary.

- **Age** – Older patients are more likely to user generic medicine than younger patients. This is probably due to a more frequent use of drugs and in particular, drugs to treat chronic illnesses associated with aging such as osteoporosis and high blood pressure.
- **Quality** – The majority of respondents believed that generics are just as effective as the originator and are of good quality
- **Salary** – Patients earning more than R20 000 per month were less inclined to use generic drugs than those earning less than that although data from patients in the lower income brackets did not give concrete evidence that it influenced the choice of generic substitution.
- **Education** – Patients with incomplete secondary to tertiary education were four times more inclined to be taking generic drug than those with no education.

Variables that were statistically insignificant regarding the influence of generic medicine use was gender, race and having a medical aid. Nevertheless, some deductions could be made from their sample:

- **Gender** – Males where more likely not to use generic drugs than females.

- **Race** – Asian people were most likely to use generic drugs followed by coloured and black people while white people were least likely to use generic drugs.
- **Having a medical aid** – Patients with access to medical aid, was less likely to use generic drugs (Igbinovia, 2007).

These results are similar to other studies done on the lay beliefs of patients regarding generic drug use (Gaither, Kirking, Ascione & Welage, 2001:734; Figueiras, Alves, Marcelino, Cortes, Weiman & Horne, 2009:319)

Furthermore, it was determined by Patel et al. (2012:5), that patients regard the advice of the prescribing doctor higher than that of the dispenser. Also, in the case of patients receiving medicine for chronic illnesses where the effect of cost starts playing a bigger part, the use of generic drugs was considered acceptable. Interestingly, in a study done by Chong, Hassali, Bahari and Shafie (2011:88), it was found that some patients will still decide to choose a generic drug even after the pharmacist has consulted with the prescribing doctor, and the doctor advised against such a substitution. The choice lies with the patient. Keeping this fact in mind, there will be attempt determine what a patient's socio-economic appearance, as perceived by the dispensing pharmacist, has on the choice of generic drugs.

2.4.8 Chronic Conditions that Necessitates Caution Regarding Generic Substitution

For a drug to be defined as a generic equivalent to the originator brand, it has to comply with bioequivalence tests. Bioequivalence refers to the concentration of the active pharmaceutical ingredient of a drug that is absorbed into the patient's systemic circulation. An acceptable comparison to the originator drug is 80% - 125% of the indicated strength (MCC, 2014). The obvious objective for a generic manufacturer is to produce a drug that is therapeutically equivalent to the originator; that is, administration of the same dosage leads to almost identical effect in terms of safety and efficacy (MCC, 2014). Although these two definitions are essentially indicating to the same outcome (in fact, regulatory authorities assume therapeutic equivalence based on bioequivalence evidence), irregularities do sometimes occur in drugs with narrow therapeutic indexes.

Many studies has investigated the effect of generic substitution in epilepsy treatment (Berg, Gross, Tomaszewski, Zingaro & Haskins, 2008:528; Crawford, Feely, Guberman & Kramer, 2006:175). The reason for the focus on epilepsy is due to the devastating effects a single breakthrough attack can have on a patient's life (injury, loss of income, driving privileges, or death). The problem is attributed to switches that happen between generic products that lie at the outer edges of the acceptable bioequivalence values. If an epilepsy patient is stabilised on a drug that has a value of 125% compared to the originator drug and is given a generic alternative that is measuring at 80% to that of the originator, the effective change is 45% and might lead to

a breakthrough seizure. Alternatively, a reverse example of the above scenario can cause serious toxic side effects in a patient when stabilised on a lower end generic and changing to an upper end generic.

The MCC has published a list of medications for which generic substitution should be done with caution while monitoring the patient thoroughly (MCC, 2003).

2.4.9 The Pharmacist's Personal Preference

Ultimately, the pharmacist will be the last line between the patient and the treatment. All the above mentioned influences will impact the pharmacist's decisions on some way or another but in addition, there are also the internal beliefs that pharmacists hold towards generic drugs.

Generally, pharmacists are very open to generic substitution (Dunne et al., 2014:221; Chong et al., 2011:88). A study of community pharmacist in Malaysia revealed some insights regarding the influences on the dispensing pharmacist during the dispensing process:

- Significantly more substitutions were done when brand name drugs where requested via a prescription than without a prescription. This may indicate a stronger brand loyalty amongst the consumers when they are buying non-prescription drugs. A similar conclusion was made by Du Plooy (2012) during a quantitative study of South African over the counter drugs.
- The demographic area (urban more than rural) influenced the rate of generic recommendation.
- The condition of the patient altered the rate of offering generic substitutes with less substitutions being made for conditions that involve the nervous system and more for anti-infective drugs for systemic use. However, there were not any significant rates of recommendation between patients with chronic and acute illnesses (Chong et al., 2011:88)

2.5 Chapter Summary

The South African retail pharmacy environment falls under the private health sector. The majority of these pharmacies are independently owned.

The events that lead to the dispensing of a specific drug are divided into three stages:

1. A doctor diagnoses a patient with an illness and writes a prescription indicating the necessary remedy,
2. Interpretation and evaluation of the prescription by a pharmacist,
3. Acceptation of the medicine by the patient.

During any of these stages several factors influence the outcome of the eventual choice of drug.

1. The influence of drug availability.
2. The influence of medication price.
3. The influence of medical representatives.
4. The influence of the prescribing doctor.
5. The influence of third party insurance (medical aids) protocol.
6. The influence of company reputation.
7. The influence of the patient.
8. The influence of chronic conditions that necessitates caution regarding generic substitution.
9. The influence of the pharmacist's personal preference.

The next chapter will explain the research methodology used in this study. It will describe the sampling method, measuring instrument and the data analysis process used to test the above mentioned factors.

CHAPTER 3

EMPIRICAL RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research design, measuring instrument and the data analyses techniques used to meet the objectives described in chapter one. This was a quantitative, cross-sectional study with data being collected from pharmacists in selected independent pharmacies via a questionnaire.

3.2 Research Design

The focus of this study was on pharmacist from independent retail pharmacies. The first reason is because the biggest share of the South Africa retail market in value and in volume is controlled by the independent retail pharmacies (IMS, 2014). The second reason is because, unlike the corporate and big chain pharmacies who only stock the drugs of a selected number of predetermined generic companies, independent pharmacies are much more free to stock the drugs of any generic drug company they like. Pharmacists from independent pharmacies are thus encountering a larger variety of generic products and would have to distinguish between the various companies more frequently.

3.2.1 Preparation of the Measuring Instrument

Three academics, that are lecturing at the School of Pharmacy at the Potchefstroom campus of the North West University (two of them still actively practicing in the field of retail pharmacy), were contacted via email to get their inputs on the factors that influence the pharmacist the most during this decision making process. The questions posed to them were straight forward:

1. What makes a generic drug successful?
2. Where in the dispensing process (beginning where the doctor writes the prescription and ending with the pharmacist dispensing the drugs), lies the greatest influence in the choice of generic drug?
3. What determines which company's drug will be dispensed?

By analysing these answers, nine significant factors were identified as being influential in the pharmacist's dispensing choice.

3.2.2 The Questionnaire

A questionnaire (Annexure 1) was designed to test the significance and strength of the nine influential factors. In consultation with the statistical analyst, it was decided to develop a four point Likert-scale. This will force the respondent to answer negatively or positively towards the questions and prevent a neutral or undecided answer. A cover page was designed that gave a brief explanation of the study as well as the contact details of the researcher. The questionnaire was divided in five sections:

Section A was designed to capture demographic information of the respondent.

Section B was testing the nine factors on a scale where 1 is "seldom" and 4 is "usually".

Section C was testing the nine factors on a scale where 1 is "strongly disagree" and 4 is "strongly agree".

Section D listed the ten most prevalent chronic conditions in South Africa (CMC, 2014) and tested the respondent's perception regarding generic substitution for these conditions.

Section E was open questions and asked the respondents to list the pharmaceutical companies that they trusted the most and those they trusted the least. The respondents were also asked to provide reasons for trusting or distrusting the given companies

A brief pilot study was done to test if all the questions were understood as was intended by the researcher. Three pharmacists were asked to complete the questionnaire of which the results were omitted from this study. Alterations to the initial questionnaire were as follows:

- It was decided to allocate number values of 1 and 2 to the male/female question to ease the data capturing.
- For the option: "pharmacy group you are working for", instead of letting the respondent fill in the questions, the pharmacy groups that was targeted were given and labelled with values 1-5 for ease of data capturing.
- The question: "years working as a pharmacist after community service", was changed from "years of retail pharmacy experience". The reason being was that the researcher felt that recently qualified interns and community service pharmacists don't have enough experience to fully contribute to the questionnaire and thus only registered pharmacists were included.
- In general, the initial questionnaire was too long and it was felt that to increase the chances of a higher response rate, some questions had to be cut. For example, section D was shortened to only include the top ten prevalent chronic diseases instead of al 25 chronic diseases on the Chronic Disease List (CDL) (The Medical Schemes Act, 131 of 1998).

Eventually, the questionnaire averaged on 5.75 questions per factor with the three questions being the least and nine the most questions.

3.2.3 Sampling Method

To be included in the sample, the pharmacy must either be part of a small group with a single owner, part of a small group with privately owned pharmacies in the group, independent of any large retail groups or a classic independently owned pharmacy. Four pharmacy groups were identified with a fifth group labelled as "independent/other" for any respondents that fell outside of the four groups. These groups were Script Savers (mostly Van Heerden Pharmacy and Pharmavalue respondents), Arrie Nell Group, Ringpharm Group and the Alpha Pharm group.

The pharmacists were approached in person, during working hours, introduced to the researcher and politely asked if they would participate in the survey. Upon receiving consent, a brief explanation of the study was verbalised, the amount of pharmacist employed at the pharmacy was observed and a corresponding amount of questionnaires were handed out. It was then requested that the questionnaires be completed and a date was fixed on which the completed questionnaires would be collected (usually within four days to a week). The participating pharmacies were all located in Pretoria. In total, 200 questionnaires were handed out. According to Sekran and Bougie (2013:268), the sample size for our study should be at least 169 respondents in order to get statistically significant results.

Thus, our sample was not a random sample but a non-probabilistic sample and the pharmacies, chosen via a convenience sampling method.

3.3 Data Analysis

The completed questionnaires was send for statistical analysis at the Statistical Consultation Services at the Potchefstroom campus of the North West University using SAS/STAT® software and Microsoft Excel® 2013 edition.

Quantitative statistical analysis was carried out with the help of the SPSS statistical program (SPSS Inc, 2007). Descriptive statistics and effect sizes were used to decide on the significance of the findings. The results are to be described and compared by way of mean and standard deviations. In this study, the mean is to be used to measure the central tendency of the results. The standard deviation (SD) presents the average distance of the individual scores from the mean.

The nine influences on generic substitution, as described in the literature study, were examined from a descriptive statistical point of view and evaluated one by one in order to determine the greatness the influence has on the pharmacist.

The confirmatory exploration factor (CFA) and exploratory factor analysis (EFA) were used to determine the validity of the questionnaires. Firstly, a simple principal components analysis was conducted on the items of the questionnaires to determine the number of constructs. For this purpose both the scree plot and eigenvalues were evaluated. Secondly, a principal axis factoring analysis with a direct Oblimin rotation was conducted in order to identify the factor loadings of the items of the questionnaire. Communalities ($r > 0.20$) were evaluated to determine the amount of variance each item explained in terms of the other items. The factor correlation matrix was evaluated to determine if factors correlated with each other. In cases where factors were related ($r > 0.30$) an Oblimin rotation was employed while a Varimax rotation was employed when in cases where factors were not related ($r < 0.30$).

Cronbach's alpha coefficient was used to assess the reliability of the constructs that are measured in this study. Pearson product-moment correlation coefficients were used to specify the relationship between the relevant variables. The product-moment co-efficient of correlation was used to calculate the relationship between sets of ordered pairs in order to obtain more precise approximations of the direction and degree of relationship. Product-moment co-efficient of correlation is based on the related variation of the members of sets of ordered pairs. If they vary together, it is said that there is a positive or negative correlation as the case may be. Thus, if a relationship exists between the variables, it can be termed a positive relationship. A negative relationship occurs when a decrease in the measurement of one variable leads to an increase in the other variable (Ferguson, 1981). If they do not co-vary, it is said that no relationship exists (Kerlinger & Lee, 2000:4). In terms of statistical significance, it was decided to set the value at a 95% confidence interval level $p \leq 0.05$.

The questions in section E asked of our respondents to identify the generic pharmaceutical companies that they trust most as well as those they trust the least. In addition to these questions, they were also asked to give reasons to support their choice of company. The qualitative section were analysed by identifying similar names or concepts and counting the number of times it occurred.

3.4 Chapter Summary

This chapter explained the research methodology of our study in detail. The preparation of our measuring instrument, the outline of our questionnaire and the process used to analyse our data were described. The next chapter will discuss the results of our research.

CHAPTER 4

RESULTS AND DUSCUSSIONS

4.1 Introduction

In this chapter, the analysed statistical data were produced and compared to the secondary objectives described in section 1.3.2 to see if any confirmatory evidence and correlations exist. The approach was to evaluate each of the factors and to determine in what manner each of them contributes to the decision making process followed by the pharmacist.

Fifty questionnaires were collected from our sample. In Gauteng, there are 4554 registered pharmacists (SAPC, 2014). In the region from which our sample was taken, the population is approximately 700. The sample is thus considerably short of our planned 170 respondents (Sekran & Bougie, 2013:268). The biggest cause for this short fall was due to time constraints on the part of the sample population. The demanding nature of retail pharmacists were not taken into account during the design of the study and many respondents did not complete their questionnaires even after repeated visits to their pharmacies. The large geographical area wherein the sample population was situated also caused some time constraints.

4.2 Demographic Results

The following demographical information was collected from the respondents: their age, gender, group of pharmacy for which they work and years retail experience after community service. The perceived economic class of the majority of their clients were also gauged from on a Likert scale where 1 is "very poor" and 4 "very rich".

4.2.1 Age

The mean age of the sample was 46,4 years with a SD of 11,2 years. The youngest respondent was 25 years and the oldest 66. Although it was not always the case, age was closely related to years of experience.

4.2.2 Gender

The sample contained an equal gender distribution with 51% male and 49% female respondents. This was an unanticipated result and not due to intentional sampling.

4.2.3 Name of Pharmacy Group with whom Employed

The majority of the sample (57,14%) was respondents from independent pharmacies or pharmacies not affiliated with any groups. The Scriptsavers group had the second most respondents (22,45%), then Arrie Nel (10,2%), Ringpharm (6,12%) and with the least respondent from the Alpha pharm group (4,08%).

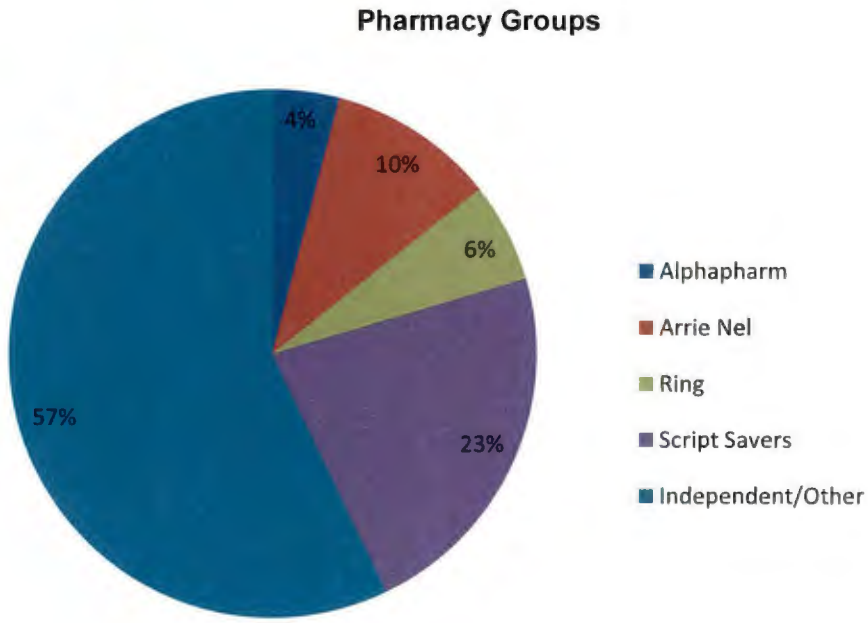

Figure 4-1 Pie chart indicating the distribution of groups for whom the respondents work for

4.2.4 Years Retail Experience after Community Service

Table 4-1 summarises the retail experience of the respondents.

Table 4-1 Years of Retail Experience after Community Service

Years of experience	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41 +
Percentage of sample	10,20	12,24	10,20	16,33	18,37	8,16	8,16	8,16	8,16

The 16-20 years of experience bracket was the largest of the sample (18,37%). However, by regrouping the last four experience brackets into one and labelling it **"more than 25 years"**, it becomes evident that the majority of the sample had more than 25 years of experience (32,64%) in retail pharmacy (fig. 4.2).

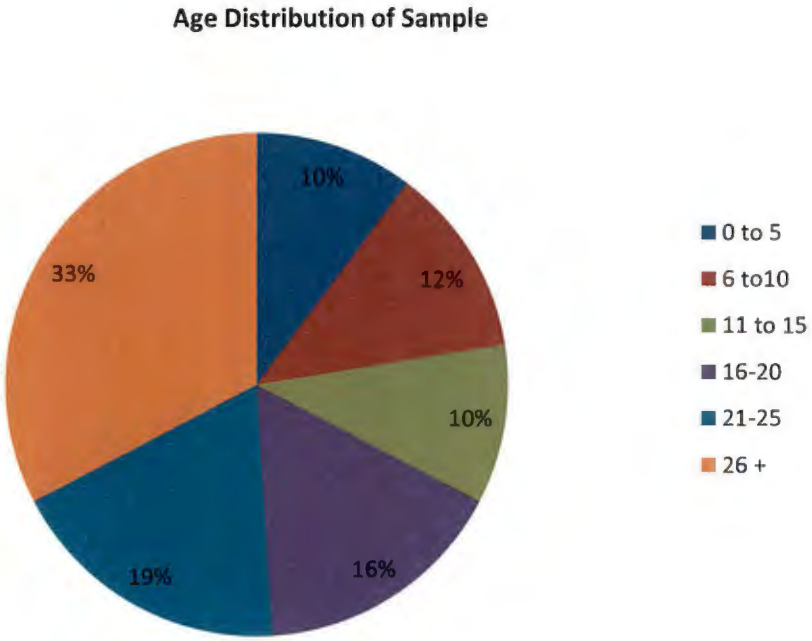

Figure 4-2 Pie chart indicating the rearranged age distribution of the sample

4.2.5 The Perceived Economic Class of the Majority of Clients

The respondent reported that the majority of their clients tended to be of a wealthier status with a mean score of 2,83 on the four-point Likert-scale and a standard deviation of 0,5. This was to be expected as the majority of the sampled pharmacies are situated in urban areas rather than townships or rural areas.

4.3 Statistical Data Results

The collected data rendered results that had to be evaluated in terms of the effect it had on the pharmacist during the dispensing process. On our four-point Likert-scale, a minimum score of 1 and a maximum of 4 could be given. A score of 2,5 indicated a neutral stance. The mean scores were interpreted as follow as indicated in table 4-2.

Table 4-2 Interpretation of Mean Values

Mean Value	Interpreted Score
< 1,00	Very Low
2,00 – 2,24	Low
2,25 – 2,49	Slightly Low
2,50	Neutral
2,51 – 2,75	Slightly High
2,76 – 2,99	High
> 3,00	Very High

4.3.1 Descriptive Statistics for the Influence of Drug Availability

The sample scored a mean of 2,41 for the influence of drug availability and indicated a slightly low tendency amongst the sampled pharmacists regarding drug availability (table. 4-3). An SD of 1,00 indicated somewhat of a distribution around the mean. Statement B1 scored a low 2,14 and indicated that our sample tended not to lose too much trust in the pharmaceutical companies when their drugs go out of stock. Also, the score of B14 (2,12 SD 1) indicated that availability alone has a low influence on our sample. However, B18 (2,58 SD 0,93) indicated a very slight chance of our sampled pharmacists to change the patient back to the generic brand they were originally on. Furthermore, C1 (2,78 SD 1,07) indicated a strong tendency in our sample to only change between different generic drugs in the event of an out of stock situation.

Table 4-3 Drug Availability

Statement	N	Mean	SD
B1 – I lose trust in a generic company if some of their drug lines go out of stock	50	2,14	1,01
B14 - I dispense any available generic brand	50	2.12	1
B18 – When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug	50	2,58	0,93
C1 – I only substitute between different generic options in out-of-stock situations	50	2,78	1,07
Drug Availability		**2,41**	**1,00**

In terms of our problem statement, drug availability does seem to have somewhat of an influence on our respondents' dispensing choices albeit a slightly low influence.

4.3.2 Descriptive Statistics for the Influence of Price

Our sample tended to value the influence of the medicine price only as slightly high (table. 4-4). Although the pharmacists in our sample felt rather neutral regarding the price of a generic drug while they are evaluating the prescription (B21 = 2,54 SD 0,95), they did tend to rank influence of cost slightly high regarding generic substitution (C2 = 2,68 SD 0.98). The data further indicated that the patient's reaction towards higher priced drugs tended to have a slightly high influence (C9 = 2,64 SD 0.9 and C15 = 2.62 SD 0.88) on our sampled pharmacists.

Table 4-4 Influence of Price

Statement	N	Mean	SD
B21 – While reading the script, I consider the best priced generic	50	2,54	0,95
C2 – Cost is the major determining factor when I decide on a generic substitute	50	2,68	0,98
C9 – I only substitute with a better priced generic drug when patients complain about high co-payments	50	2,64	0,9
C15 – Patients do not mind incurring co-payments for higher priced generic drugs*	50	2,62	0,88
Drug Price		**2,62**	**0,93**

* The mean represents a reversed value of the original 2,38

In terms of the problem statement, the influence of price, has only a slightly high effect on the decision making process of our respondents.

4.3.3 Descriptive Statistics for the Influence of Medical Representatives

From table 4-5, it is clear that our sampled pharmacists indicated that the MR's of the various generic drug companies had a very high influence on their dispensing habits (3,00 SD 0,78). Although a very high value was scored regarding having a good relationship with medical reps (B13 = 3,34 SD 0,8), our sample felt that a good relationship had a neutral influence on their dispensing decisions (C20 = 2,58 SD 0,84). Given the fact that MR's are the link between a generic manufacturer and the pharmacists, it was thus important for B19 (2,84 SD 0,79) and B24 (3,06 0,83) to score the high values they did. Furthermore, C10 (3,12 SD 0,75) indicated that our sample regarded being regularly detailed about generic drugs, had a very high influence on their dispensing decisions. A slightly high value was scored for C11 (2,63 SD 0,83) also portraying to the influence of active reps. C16 (3,48 SD 0,65) scored very high and supported the last 3 statements.

Table 4-5 Influence of Medical Representatives

Statement	N	Mean	SD
B13 – I have a good relationship with medical representatives	50	3,34	0,8
B19 – Medical representatives supply me with valuable information	50	2,84	0,79
B24 – Medical representatives provide me with data that compares the effectiveness of their drug to the originator and other generic drugs	49	3,06	0,83
C10 – I dispense generic drugs that I am regularly detailed about	50	3,12	0,75
C11 – I tend not to dispense a generic drug if I do not see the medical representative regularly	49	2,63	0,83
C16 – Well informed medical representatives build my trust in their company	50	3,48	0,65
C20 – I favour a generic drug brand if I have a good relationship with the medical representatives of that company	50	2,58	0,84
Medical Representatives		**3,00**	**0,78**

Other results regarding MR's (table. 4-6), indicated that the looks and appearances of MR's had a very low influence on the dispensing habits of our sample pharmacists (B3 = 1,82 SD 0,89). It seems as if generic drug companies are aware of this as a low score was attained for C6 (2,12 SD 0,82).

A neutral score was attributed to B23 (2,58 SD 1,01) indicating that our sample did not value effectivity studies very high regarding the influence on their dispensing decisions. Although it looks as if C10 and B23 are contradicting each other, the result should rather be interpreted that our sample were distinguishing between the types of information that influence their dispensing decisions as well as the regularity of which they receive it.

Table 4-6 Other Information regarding Medical Representatives

Statement	N	Mean	SD
B3 - My choice of a generic drug is influenced by the appearance of the representative of that company	50	1,82	0,89
B23 – I want to see the results of effectivity studies before I consider a generic drug	50	2,58	1,01
C6 – Generic drug companies focus more on the appearance of their representatives than their knowledge	50	2,12	0,82

In terms of the problem statement, the medical representatives exercise the biggest influence on our respondents' dispensing choices.

4.3.4 Descriptive Statistics for the Influence of the Prescribing Doctor

As indicated by table 4-7, the influence of the prescribing doctor was deemed slightly low by our sample (2,34 SD 0,84). Although our sample perceived the doctor's influence on the selected generic brand as low (C14 = 2,1 SD 0,84), the variable's mean was increased by statements B5 (2,68 SD 0,84), B10 (2,38 SD 0,83) and B20 (2,54 SD 0,79). Statements B5 and B20 indicated respectively that our sample scored a slightly high value regarding receiving prescriptions wherein generic drugs are asked for by their name and that an almost neutral score was given regarding the dispensing of exactly that what is written is on the prescription. B10 indicated that doctors, who completely disallowed generic substitution, had a slightly low influence on the sampled pharmacists' prescribing habits.

Table 4-7 Influence of the Prescribing Doctor

Statement	N	Mean	SD
B5 I receive prescriptions where the doctor asks for a generic product by name	50	2,68	0,84
B10 I receive prescriptions where the prescriber disallow generic substitution	50	2,38	0,83
B20 I normally end up dispensing exactly the brand of drugs that are written on the script	50	2,54	0,79
C14 Doctors have the greatest influence on the brand of generic drug that I dispense	50	2,1	0,91
Prescribing Doctor		**2,34**	**0,84**

In terms of the problem statement, the prescribing doctor has a slightly low influence on our respondents' dispensing choices.

4.3.5 Descriptive Statistics for the Influence of Third Party Insurance Protocol

At first glance (table. 4-8a), the influence of medical aids were rated a slightly high influence on our sample's dispensing habits (2,68 SD 0,8). The influence of Nappi code specific drugs (B4 = 2,08 SD 0,9) were rated low by our sample (a Nappi code refers to a code by which a pharmaceutical company registers its medicine with medical aids and links a specific item to any claim that is done from a dispensing program). It was decided to omit this statement and recalculated the variable. Table 4-9 indicated a mean value of 2,88 (SD 0,87), rating it as high influence by our sample. B12 indicated a high influence by medical aid formularies (2,92 SD 0,88) while C19 (3,1 SD 0,86) indicated a perception that medical aid companies has very high influence on the dispensing habits of our sample. C15 (2,62 SD 0,88), linked the patient's reaction to co-payments enforced by medical aids to the influence of medical aids. It indicated a slightly high influence.

Table 4-8 Influence of Third Party Insurance Protocol[a]

Statement	N	Mean	SD
B4 – I encounter scripts where I have to dispense Nappi code specific drugs	48	2,08	0,9
B12 – I dispense a generic drug according to a medical aid formulary	50	2,92	0,88
C15 – Patients do not mind incurring co-payments for higher priced generic drugs*	50	2,62	0,88
C19 – Medical Aids are a major influence on the choice of generic drug I dispense	50	3,1	0,86
Third Party Protocol[a]		**2,68**	**0,88**

* Mean represents a reversed value of the original 2,38

Table 4-9 Influence of Third Party Insurance Protocol[b]

Statement	N	Mean	SD
B12 – I dispense a generic drug according to a medical aid formulary	50	2,92	0,88
C15 – Patients do not mind incurring co-payments for higher priced generic drugs*	50	2,62	0,88
C19 – Medical Aids are a major influence on the choice of generic drug I dispense	50	3,1	0,86
Third Party Protocol[b]		**2,88**	**0,87**

* Mean represents a reversed value of the original 2,38

In terms of the problem statement, third party insurance companies do exercise quite a substantial influence on our respondents' dispensing choices, scoring a high influence.

4.3.6 Descriptive Statistics for the Influence of Company Reputation

Company reputation (2,88 SD 0,87) was rated as having a high influence on our sample's dispensing habits (table. 4-10). B25 (2,52 SD 0,97) and C21 (2,57 SD 0,87) indicated only a slightly high influence on our sample's considerations regarding generic substitution. However, B15 (3,04 SD 0,86) indicated a very high perception of differences in quality amongst various generic brands. The element of company reputation and quality were again highlighted in C4 (3,32 SD 0,79) were the influence of trust in generic product consideration were deemed very high. Statement C7 (1,52 SD 0,83) was not used in the calculation of the mean but supported B15 and C4 regarding quality in the sense that a very low score was attributed to trusting all generics across the board.

Table 4-10 Influence of Company Reputation

Statement	N	Mean	SD
B15 – I distinguish between the quality of generic drugs of different drug manufacturers	50	3,04	0,86
B25 – I distinguish between the countries of origin of generic drugs when I consider dispensing a generic drug	50	2,52	0,97
C4 – While reading a prescription, I consider only generic drugs I trust	50	3,32	0,79
C21 – The country of origin of a generic drug company has a big influence on my decision regarding generic substitution	49	2,57	0,87
Company Reputation		**2,86**	**0,87**
C7 – I trust all generic drugs	50	1,52	0,83

In terms of the problem statement, company reputation has a high influence on the dispensing pharmacists' choice of generic drug.

4.3.7 Descriptive Statistics for the Influence of the Patient

The pharmacists in our sample scored, "the influence of the patient", on their dispensing habits as slightly low (2,37 SD 0,9) as seen in table 4-11. B2 (2,92 SD 0,75) indicated a high perceived willingness by the patients to substitute their medication with generic drugs.

Table 4-11 Influence of the Patient[a]

Statement	N	Mean	SD
B2 – Patients are willing to substitute their medication with generic drugs	50	2,92	0,75
B17 – Patients ask me for generic drugs by their trade name	50	2,06	0,91
C5 – Patients are educated about generic drugs	49	2,18	0,95
C12 – Although the patient is the consumer of drugs, they are not the chooser or drugs*	49	2,29	0,93
C18 – The appearance of the patient influences me to offer a cheaper generic or a more expensive generic	49	2,38	0,97
The Patient[a]		**2,37**	**0,90**

* Mean represents a reversed value of the original 2,71

By omitting this statement and recalculating the mean, a value of 2,23 (SD 0,94) was achieved, that changed the influence to the "low" bracket (table. 4-12). B17 (2,06 SD 0,91) and C5 (2,18 SD 0,95) supports the fact that the patients don't know a lot about generic medicine and is rated as low influences by our sample. The sample tended to value the patient as a consumer but not the main channel of influence regarding the choice of generic medication rating it as slightly low

(C12 = 2,29 SD 0,93). The appearance of the patient (C18 2,38 SD 0,97) was rated as a slightly low influence by our sample.

Table 4-12 Influence of the Patient[b]

Statement	N	Mean	SD
B17 – Patients ask me for generic drugs by their trade name	50	2,06	0,91
C5 – Patients are educated about generic drugs	49	2,18	0,95
C12 – Although the patient is the consumer of drugs, they are not the chooser or drugs*	49	2,29	0,93
C18 – The appearance of the patient influences me to offer a cheaper generic or a more expensive generic	49	2,38	0,97
The Patient[b]		**2,23**	**0,94**

* Mean represents a reversed value of the original 2,71

In terms of the problem statement, the patient has a low influence on our respondents' choice of generic drug.

4.3.8 Descriptive Statistics for the Influence of Chronic Conditions that Necessitates Caution Regarding Generic Substitution

From table 4-13 a deduction that our sample regarded differentiating between chronic conditions as a high influence on their dispensing habits (2.82, SD 1,07) can be made. Table 4-13 also lists the ten most common chronic conditions in South Africa from the most likely to least likely to be substituted. Our sample indicated that medication for conditions relating to high cholesterol and hypothyroidism would be substituted the easiest scoring a very high rating 3,06 (SD 0,8) and 3,02 (SD 0,85) respectively while medication for epilepsy would not be substituted easily scoring a very low rating (1,8 SD 1,04).

Table 4-13 Influence of the Chronic Conditions

Statement	N	Mean	SD
B7 – I distinguish between different illnesses when considering interchanging between generic brands	49	2,82	1,07
Condition			
D7 – Hyperlipidaemia	49	3,06	0,8
D9 – Hypothyroidism	49	3,02	0,85
D6 – Human Immune Virus (HIV)	49	2,8	0,93
D8 – Hypertension	49	2,73	0,88
D4 – Diabetes (type 2)	49	2,65	0,9
D3 – Diabetes (type 1)	49	2,57	0,89
D1 – Asthma	49	2,57	0,94
D2 – Coronary artery disease	49	2,29	1
D10 – Bipolar Mood Disorder	49	2,04	1,15
D5 – Epilepsy	49	1,8	1,04

In terms of the problem statement, it does seem that our respondents are distinguishing between different chronic diseases when they make their dispensing choices.

4.3.9 Descriptive Statistics for the Influence of the Pharmacist's Personal Preference

From table 4-14, one can see that the influence of the pharmacist's personal preference was rated by our sample as high (2,75 SD 0,97). B9 (2,78 SD 0,97), B11 (3,46 SD 0,86), B16 (2,43 SD 1,13), B22 (2,8 SD 0,97) and C17 (2,8 SD 0,78) are all indicating to our sample pharmacists' willingness to initiate generic substitution. B9, B22 and C17 were rated high; B11 was rated very high while B16 was rated slightly low. Drugs that are favoured by the company the sampled pharmacists work for were rated as a slightly low influence (2,32 SD 1,15). Furthermore, our sample tended to have a slightly strong perception that generic drugs are on par with the originator drugs (C13 2,63 SD 0,91).

Table 4-14 Pharmacist's Preference

Statement	N	Mean	SD
B9 – I regularly offer to switch patients between generic versions of the drug that they were offered initially	50	2,78	0,97
B11 – Whenever a patient receives medication, I offer him/her the option of generic substitution	50	3,46	0,86
B16 – When a patient incurs co-payments and does not complain about it, I initiate generic substitution	49	2,43	1,13
B22 – Whenever a new generic drug (relevant to the patient's condition) enters the market, I offer him/her the option of generic substitution	50	2,8	0,97
B26 – I dispense generic drugs that are favoured by the company I work for	50	2,32	1,15
C13 – Generic drugs are not as effective as the originator*	49	2,63	0,91
C17 – I am reluctant to substitute an originator drug with a generic drug*	50	2,8	0,78
Pharmacist's Personal Preference		**2,76**	**0,97**

* Mean represents a reversed value of the original 2,27 and 2,2 respectively.

Other statements that were not used in determining the mean but also pertaining to the pharmacist's preference are captured in table 4-15. A very high value was given to the distinguishing between a cloned drug and a generic drug (B6 = 3,16 SD 0,94). A cloned drug is per definition a generic drug with the difference being that a clone is compounded and manufactured via the exact same recipe and method as the originator (often even coming from the same produced batch but packaged and marketed by another company) while a generic only contains a bioequivalent amount of the active ingredient of the originator drug.

Three statements, B8 (2,1 SD 1.05), C3 (1,64 SD 0,83) and C8 (2,24 SD 0,96), all pertaining to the extent to which a pharmacist will take into account the taste of dissolvable drug, suspensions and syrup. Low scores were attributed to the pharmacist's knowledge of drug taste as well as taking the taste of flavoured drugs into account when suggesting alternatives to patients, while the influence of taste regarding the dispensing choice scored a very low rating.

Table 4-15 Other Influences Regarding the Pharmacist's preferences

Statement	N	Mean	SD
B6 - I distinguish between the quality of clones and that of generic drugs	49	3,16	0,94
B8 - I know the taste of dissolvable drugs and suspensions	50	2,1	1,05
C3 - I take the taste of a generic drug into account when I decide if I will dispense it	50	1,64	0,83
C8 - I suggest better tasting drugs or suspensions to patients	50	2,24	0,96

In terms of the problem statement, our respondents indicated that their own personal preference has a high influence on the final choice of generic drug.

4.4 Validity Testing

A principle component analysis was carried out to test for validity of the data. The scree plot (fig. 4-1) did not have a kink (Pallant, 2010:192), so six constructs with eigenvalues greater than 2 were analysed for reliability.

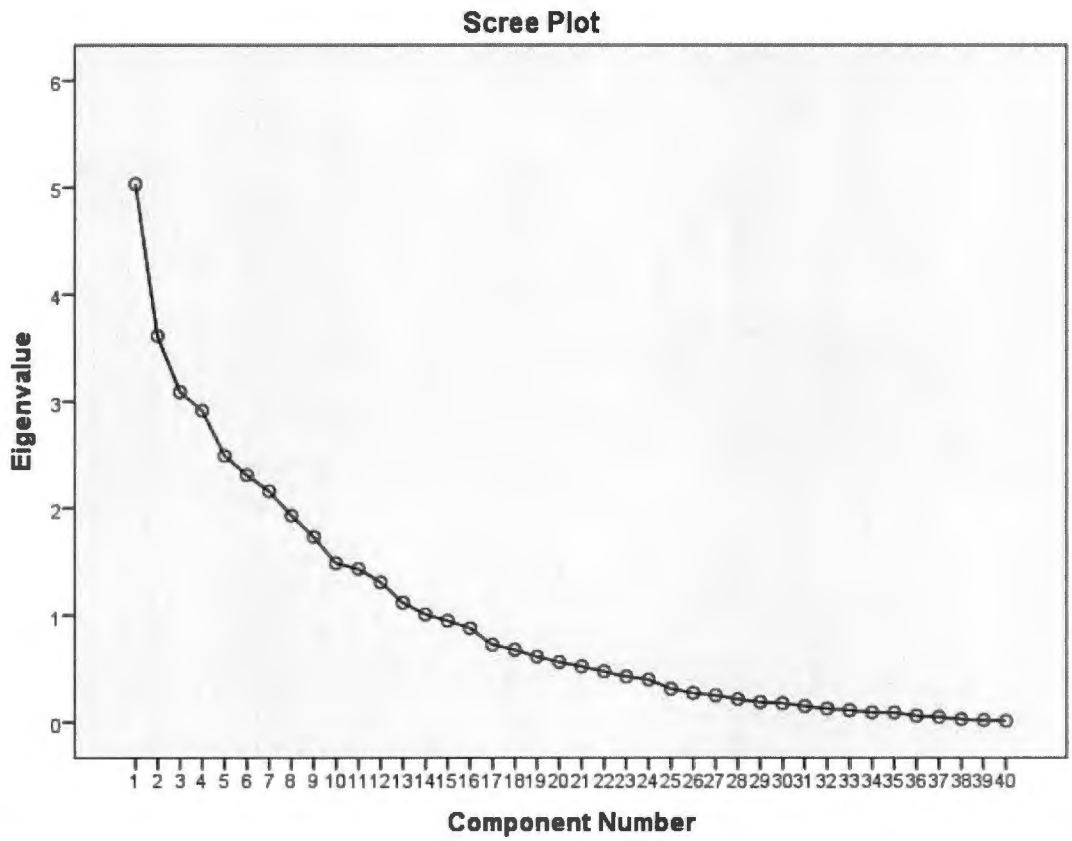

Figure 4-3 Scree plot of the eigenvalue versus component number

4.4.1 Results from Factor Analysis

The factor analysis revealed that inadequate correlations existed for our descriptive statistics. This might be to short comings of our measuring instrument and that questions were interpreted differently amongst the sampled pharmacists. The sample size might also have played a significant role in the resultant findings. However, six constructs were extracted from the factor analysis:

- Cost of generics
- Perceived quality of generic drugs
- Product knowledge
- Influences of the pharmaceutical company
- Effect of brand loyalty
- Spur-of-the-moment-influences

For each construct the items loading onto that specific construct are listed, as well as the factor loading, the mean response (on a 4-point Likert scale) to that item and the standard deviation of the responses. Also given is the correlation matrix for that factor as well as Cronbach's alpha coefficient. Only constructs with a Cronbach's alpha coefficient greater than 0.5 (Field, 2011:675) were retained.

Additionally, the median age of respondents (48 years) was calculated and this was used to divide the respondents into two groups. The average score was calculated for both groupings (older and younger than 48) to ascertain whether there is a noteworthy difference in the responses between older and younger pharmacists. For easy differentiation between the two groups, scores lower than average was coloured in red and above average scores in green. Where only a 0,1 or smaller difference between the variables where observed, no colour codes were applied between the averages as it was not regarded as indicating any differences in viewpoints between older and younger pharmacists. Although there are visible differences between the groups, as seen in tables 4-16, 4-18, 4-20, 4-22, 4-24 and 4-26 an independent t-test on Construct 1 (table. 4-28 and table. 4-39), revealed that the level of significance of this difference is much greater than 0,05, and therefore the differences in response between the younger and the older pharmacists cannot be regarded as statistically significant.

4.4.1.1 Construct 1 – Cost of Generics

Seventeen variables loaded into Construct 1 (table. 4-17). Examination of the variables revealed that four referred to price related issues (C21, C12, C9, and B16). Variables are given in descending order according of the factor loading number. At least three variables were required to load into a construct to get a meaningful interpretation (Williams, Brown & Onsman,

2012:9). Variables B2 and B17, and B22, B11, B9 and B14 indicated a positive attitude towards generic drugs from the patient and the pharmacist's points of view respectably. It was reasoned that the term "generic" already implied a reduced price and also attributed those five variables to construct one.

Cronbach's alpha for Construct 1 was calculated using SPSS as 0.791 and this factor can therefore be regarded as reliable (table. 4-18).

It can thus be derived from our empirical study that the cost of generic drugs is the construct with the highest correlation amongst our sampled pharmacists and does play a significant role in influencing their decision making process when dispensing medicine.

Table 4-16 Construct 1: Cost of Generics

	Item	Factor loading	Mean (4pt Likert)	SD	Mean >48	Mean <48
B22*	Whenever a new generic drug (relevant to the patient's condition) enters the market, I offer him/her the option of generic substitution	0,795	2.8	1.0	2.7	2.9
C21*	While reading the script, I consider the best priced generic	0.733	2.6	0.9	2.3	2.8
B11*	Whenever a patient receives medication, I offer him/her the option of generic substitution	0.626	3.5	0.9	3.5	3.4
B9*	I regularly offer to switch patients between generic versions of the drug that they were offered initially	0.594	2.8	1	2.9	2.7
B2*	Patients are willing to substitute their medication with generic drugs	0.546	2.9	0.8	2.9	2.9
C12*	Patients do not mind incurring co-payments for higher priced generic drugs	0.526	2.7	0.9	2.9	2.4
B13	I have a good relationship with medical representatives	0.52	3.3	0.8	3.4	3.3
C9*	I only substitute with a better priced generic drug when patients complain about high co-payments	0.479	2.6	0.9	2.5	2.8
B26	I dispense generic drugs that are favoured by the company I work for	0.458	2.3	1.2	2.3	2.1
B17*	Patients ask me for generic drugs by their trade name	0.427	2.1	0.9	2.3	2

	Item	Factor loading	Mean (4pt Likert)	SD	Mean >48	Mean <48
B18	When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug	0.362	2.6	0.9	2.5	2.7
C11	I tend not to dispense a generic drug if I do not see the medical representative regularly	0.361	2.6	0.9	2.6	2.6
C17	I am reluctant to substitute an originator drug with a generic drug	0.34	2.2	0.8	2.4	2
B19	Medical representatives supply me with valuable information	0.338	2.8	0.9	2.8	2.8
B12	I dispense a generic drug according to a medical aid formulary	0.336	2.9	0.9	3.2	2.7
B14*	I dispense any available generic brand	0.332	3	0.9	2.9	3.2

* Variables included in the labelling of the construct

Table 4-17 Validity of Construct 1

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.792	0.791	16

4.4.1.2 Construct 2: Perceived Quality of Generic Drugs

Twelve variables loaded into Construct 2 (table. 4-19) from which ten were considered to indicate quality related issues (Williams *et al.*, 2012:9). B15, B25, C13 and B6 indicated to the internal tendency of the pharmacist to distinguish between originator and generic drugs and B7, the importance of considering the quality of generic drugs when different illnesses are involved. C11, C10, B23 and C16 indicated the pharmacist's need to be well-informed about medication before it will be dispensed (reasoning that a pharmacist will have a better idea of the product quality) while C8 (taste of suspension or syrup) also relates to a qualitative property of medicine.

Cronbach's alpha for this factor was calculated as 0.722 (table. 4-20), and this factor can therefore be regarded as reliable.

A further deduction that can be made from our empirical study is that there is a relative high correlation amongst our sampled pharmacists regarding the perceived quality of generic drugs. It is an indication that the quality of a generic drug is influential in the decision making process of our sampled pharmacists during the dispensing of generic drugs.

Table 4-18 Construct 2 – Perceived Quality of Generic Drugs

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
B15*	I distinguish between the quality of generic drugs of different drug manufacturers	0.753	3	0.9	2.9	3.2
B25*	I distinguish between the countries of origin of generic drugs when I consider dispensing a generic drug	0.638	2.5	1	2.2	2.8
C11*	I tend not to dispense a generic drug if I do not see the medical representative regularly	0.515	2.6	0.8	2.6	2.6
B7*	I distinguish between different illnesses when considering interchanging between generic brands	0.51	2.8	1.1	2.7	2.8
C8*	I suggest better tasting drugs or suspensions to patients	0.477	2.2	1	2.3	2.2
C12	Although the patient is the consumer of drugs, they are not the chooser or drugs	0.476	2.7	0.9	2.9	2.4
C10*	I dispense generic drugs that I am regularly detailed about	0.422	3.1	0.7	3	3.2
B23*	I want to see the results of effectivity studies before I consider a generic drug	0.421	2.6	1	2.3	2.8
C13*	Generic drugs are not as effective as the originator	0.356	2.3	0.9	2.3	2.1
B6*	I distinguish between the quality of clones and that of generic drugs	0.339	3.2	0.9	3.2	3
C16*	Well informed medical representatives build my trust in their company	0.338	3.5	0.6	3.6	3.3
C1	I only substitute with a better priced generic drug when patients complain about high co-payments	0.31	2.8	1.1	2.5	3

* Variables included in the labelling of the construct

Table 4-19 Validity of Construct 2

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.718	0.722	12

4.4.1.3 Construct 3: Product Knowledge

Construct 3 had eight variables loading into it (table. 4-21). Four variables, B8, C10, C17 and C8, could be interpreted as having product knowledge as a common factor (Williams *et al.*, 2012:9). B8 and C8 incorporated **the knowledge of a product's qualitative properties while** C10 indicated the need to be informed about the product. C17 was included, reasoning that the choice between the originator and generic drug will probably depend on knowledge of the drugs.

Cronbach's alpha was calculated for this factor as 0.674 (table. 4-22), and within the limitations of this study, the results were regarded as reasonably reliable (Field, 2011:675).

Although the construct did not correlate as strongly as the previous two, it did indicate that our sampled pharmacists regard information relating to the generic drugs they dispense as influencing their dispensing decisions.

Table 4-20 Construct 3 – Product Knowledge

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
B8*	I know the taste of dissolvable drugs and suspensions	0.584	2.1	1.1	1.8	2.4
C15	Patients do not mind incurring co-payments for higher priced generic drugs	0.552	2.4	0.9	2.3	2.5
C14	Doctors have the greatest influence on the brand of generic drug that I dispense	0.537	2.1	0.9	2	2.2
C10*	I dispense generic drugs that I am regularly detailed about	0.484	3.1	0.7	3	3.2
C17*	I am reluctant to substitute an originator drug with a generic drug	0.429	2.2	0.8	2.4	2

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
C8*	I suggest better tasting drugs or suspensions to patients	0.402	2.2	1	2.3	2.2
B1	I lose trust in a generic company if some of their drug lines go out of stock	0.386	2.1	1	1.9	2.4
B14	I dispense any available generic brand	0.369	2.1	1	2.1	2.2

* Variables included in the labelling of the construct

Table 4-21 Validity of Construct 3

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.669	0.674	8

4.4.1.4 Construct 4: Influences by the Pharmaceutical Company

Nine variables loaded into Construct 4 (table. 4-23). Examination of the variables revealed that the common factor between seven of them were the ability of a pharmaceutical company to influence the outcome of the dispensed drugs (C21, B19, B10, B13, B5, C20 and B26) and were used to interpret and label the construct (Williams *et al.*, 2012:9). C21 indicated the tendency of pharmacists to distinguish between the **different pharmaceutical companies'** countries of origin. B19, B13 and C20 combined the influence of the **MR's** that are employed by the pharmaceutical companies. B10 and B5 are influences of the prescribing doctors where they either disallow the use of generic drugs or ask for it by name. It was reasoned that both variables indicated the influence of marketing by a generic company that influenced the doctor. B26 spoke about dispensing of drugs favoured by the company the pharmacist works for. This indicated the influence of pharmaceutical companies that negotiated with pharmacy groups to get their products promoted.

Cronbach's alpha for this construct was calculated as 0,642 (table.4-24). Within the limitations of this study, these results can therefore be regarded as reliable (Field, 2011:675).

This construct also showed less correlation than the first two but does indicate that the pharmaceutical companies manage to influence the decision making process of our sampled pharmacists.

Table 4-22 Construct 4 – Influences by the Pharmaceutical Company

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
C21*	The country of origin of a generic drug company has a big influence on my decision regarding generic substitution	0.586	2.6	1	2.3	2.8
B19*	Medical representatives supply me with valuable information	0.567	2.8	0.8	2.8	2.8
B10*	I receive prescriptions where the prescriber disallow generic substitution	0.483	2.4	0.8	2.5	2.3
C18	The appearance of the patient influences me to offer a cheaper generic or a more expensive generic	0.45	2.4	1	2.4	2.3
B13*	I have a good relationship with medical representatives	0.423	3.3	0.8	3.4	3.3
B5*	I receive prescriptions where the doctor asks for a generic product by name	0.382	2.7	0.8	2.6	2.7
C20*	I favour a generic drug brand if I have a good relationship with the medical representatives of that company	0.38	2.6	0.8	2.8	2.3
C17	I am reluctant to substitute an originator drug with a generic drug	0.357	2.2	0.8	2.4	2
B26*	I dispense generic drugs that are favoured by the company I work for	0.307	2.3	1.2	2.5	2.1

* Variables included in the labelling of the construct

Table 4-23 Validity of Construct 4

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.624	0.642	9

4.4.1.5 Construct 5: Effect of Brand Loyalty

Construct 5 had seven variables loading into it (table. 4-25). Our limited response rate caused the variables loading into Construct 5 to seem a bit random at first. However, three variables (B17, B5 and C14) indicated a commonality which were **labelled "Effect of Brand Loyalty"** (Williams *et al.*, 2012:9). Although there was earlier argued against the existence of brand loyalty on the topic of prescription drugs it does happen that some patients, usually those who are using chronic medicine, start relating to a specific generic brand. Also, doctors tend to start prescribing the generic drugs they trust, by name.

For this factor, Cronbach's alpha was calculated as 0.543 (table. 4-26). The reliability of this construct is therefore regarded as marginal, but still high enough to be reported (Field, 2011:675).

The small correlation makes it difficult to deduce to what extent the influence of brand loyalty influences our sampled pharmacists. This construct is cautiously related to the problem statement.

Table 4-24 Construct 5 – Effect of Brand Loyalty

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
B6	I distinguish between the quality of clones and that of generic drugs	0.554	3.2	0.9	3.2	3
B17*	Patients ask me for generic drugs by their trade name	0.398	2.1	0.9	2.1	2
B5*	I receive prescriptions where the doctor asks for a generic product by name	0.382	2.7	0.8	2.6	2.7
C14*	Doctors have the greatest influence on the brand of generic drug that I dispense	0.368	2.1	0.9	2	2.2
B2	Patients are willing to substitute their medication with generic drugs	0.355	2.9	1	2.9	2.9
B1	I lose trust in a generic company if some of their drug lines go out of stock	0.338	2.1	1	1.9	2.4
B7	I distinguish between different illnesses when considering interchanging between generic brands	0.336	2.8	1.1	2.7	2.8

* Variables included in the labelling of the construct

Table 4-25 Validity of Construct 5

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.538	0.534	7

4.4.1.6 Construct 6: Spur-of-the-Moment Influences

While admittedly interpreting the variables loading into Construct 6 (table. 4-27) with caution, it is labelled "Spur-of-the-moment influences". Four variables (B20, B12, C18 and C19) indicated situations where the pharmacist was faced with leading factors during the process of dispensing (Williams *et al.*, 2012:9).

For this construct, the Cronbach alpha was calculated as 0.563 (table. 4-28). It is therefore marginal, but high enough to be reported.

It is difficult to pin the influence of this construct on a specific external cause. It may indicate to some of the limitations of our study. After identifing several factors that may influence our sampled pharmacists' dispensing habits there are still times that dispensing will happen in the spur of the moment.

Table 4-26 Construct 6 – Spur-of-the-Moment Influences

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
B20*	I normally end up dispensing exactly the brand of drugs that are written on the script	0.561	2.5	0.8	2.5	2.5
B12*	I dispense a generic drug according to a medical aid formulary	0.524	2.9	0.9	3.2	2.7
B3	My choice of a generic drug is influenced by the appearance of the representative of that company	0.444	1.8	0.9	1.7	2
C18*	The appearance of the patient influences me to offer a cheaper generic or a more expensive generic	0.401	2.4	1	2.4	2.3
C19*	Medical Aids are a major influence on the choice of generic drug I dispense	0.373	3.1	0.9	3.2	3

	Item	Factor loading	Mean (4pt Likert)	Standard Deviation	Mean >48	Mean <48
C21	The country of origin of a generic drug company has a big influence on my decision regarding generic substitution	0.349	2.6	0.9	2.3	2.8
B14	I dispense any available generic brand	0.328	2.1	1	2.1	2.2
C20	I favour a generic drug brand if I have a good relationship with the medical representatives of that company	0.318	2.6	0.8	2.8	2.3

* Variables included in the labelling of the construct

Table 4-27 Validity of Construct 6

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.554	0.563	7

Table 4-28 Independent T-test of Construct 1

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Patients are willing to substitute their medication with generic drugs	Equal variances assumed	1.003	.322	-.343	48	.733	-.074	.215	-.505	.358
	Equal variances not assumed			-.346	47.65	.731	-.074	.213	-.503	.355
While reading the script, I consider the best priced generic	Equal variances assumed	.020	.887	-.012	48	.991	-.003	.272	-.551	.544
	Equal variances not assumed			-.012	47.40	.991	-.003	.273	-.552	.545
Whenever a patient receives medication, I offer him/her the option of generic substitution	Equal variances assumed	.018	.894	.013	48	.990	.003	.247	-.493	.499
	Equal variances not assumed			.013	47.43	.990	.003	.247	-.493	.500
I regularly offer to switch patients between generic versions of the drug that they were	Equal variances assumed	.417	.522	.787	48	.435	.218	.277	-.339	.775

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
offered initially	Equal variances not assumed			.785	47.103	.436	.218	.278	-.341	.777
Patients do not mind incurring co-payments for higher priced generic drugs	Equal variances assumed	2.568	.116	-.363	48	.719	-.099	.274	-.650	.452
	Equal variances not assumed			-.359	43.611	.721	-.099	.277	-.657	.459
I have a good relationship with medical representatives	Equal variances assumed	.110	.742	.056	48	.955	.013	.228	-.446	.472
	Equal variances not assumed			.056	47.974	.955	.013	.227	-.444	.470
I only substitute with a better priced generic drug when patients complain about high co-payments	Equal variances assumed	2.030	.161	-.482	48	.632	-.135	.279	-.696	.426
	Equal variances not assumed			-.486	47.648	.629	-.135	.277	-.692	.423
I dispense generic drugs that are favoured by the company I work for	Equal variances assumed	2.507	.120	1.155	48	.254	.375	.325	-.278	1.028

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			1.164	47.532	.250	.375	.322	-.273	1.023
Patients ask me for generic drugs by their trade name	Equal variances assumed	.255	.616	.135	48	.893	.035	.261	-.490	.560
	Equal variances not assumed			.136	47.895	.893	.035	.260	-.487	.557
When a patient incurs co-payments and does not complain about it, I initiate generic substitution	Equal variances assumed	2.439	.125	.506	48	.615	.170	.335	-.505	.844
	Equal variances not assumed			.511	47.072	.612	.170	.332	-.499	.839
When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug	Equal variances assumed	.860	.358	-.631	48	.531	-.167	.264	-.698	.365
	Equal variances not assumed			-.634	47.883	.529	-.167	.263	-.695	.362
I tend not to dispense a generic drug if I do not see the medical representative regularly	Equal variances assumed	.471	.496	-.825	48	.414	-.186	.225	-.639	.267

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
	Equal variances not assumed			-.831	47.503	.410	-.186	.224	-.636	.264
I am reluctant to substitute an originator drug with a generic drug	Equal variances assumed	.030	.862	-1.189	48	.240	-.250	.210	-.673	.173
	Equal variances not assumed			-1.197	47.643	.237	-.250	.209	-.670	.170
Medical representatives supply me with valuable information	Equal variances assumed	1.024	.317	.057	48	.955	.013	.226	-.442	.468
	Equal variances not assumed			.057	47.996	.955	.013	.226	-.441	.466
I dispense a generic drug according to a medical aid formulary	Equal variances assumed	1.314	.257	2.024	48	.049	.487	.241	.003	.971
	Equal variances not assumed			2.011	45.481	.050	.487	.242	-.001	.975
I dispense any available generic brand	Equal variances assumed	.000	.995	-.034	48	.973	-.010	.287	-.586	.567

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances not assumed			-.033	47.288	.973	-.010	.287	-.587	.568

Table 4-29 Results from Independent t-Test of Construct 1

	Age	N	Mean	Std. Deviation	Std. Error Mean
Patients are willing to substitute their medication with generic drugs	>= 48	26	2.88	.816	.160
	< 48	24	2.96	.690	.141
While reading the script, I consider the best priced generic	>= 48	26	2.54	.948	.186
	< 48	24	2.54	.977	.199
Whenever a patient receives medication, I offer him/her the option of generic substitution	>= 48	26	3.46	.859	.169
	< 48	24	3.46	.884	.180
I regularly offer to switch patients between generic versions of the drug that they were offered initially	>= 48	26	2.88	.952	.187
	< 48	24	2.67	1.007	.206
Patients do not mind incurring co-payments for higher priced generic drugs	>= 48	26	2.19	.849	.167
	< 48	24	2.29	1.083	.221
I have a good relationship with medical representatives	>= 48	26	3.35	.846	.166
	< 48	24	3.33	.761	.155
I only substitute with a better priced generic drug when patients complain about high co-payments	>= 48	26	2.62	1.061	.208
	< 48	24	2.75	.897	.183
I dispense generic drugs that are favoured by the company I work for	>= 48	26	2.50	1.241	.243
	< 48	24	2.13	1.035	.211

	Age	N	Mean	Std. Deviation	Std. Error Mean
Patients ask me for generic drugs by their trade name	>= 48	26	2.08	.977	.192
	< 48	24	2.04	.859	.175
When a patient incurs co-payments and does not complain about it, I initiate generic substitution	>= 48	26	2.46	1.303	.256
	< 48	24	2.29	1.042	.213
When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug	>= 48	26	2.50	.990	.194
	< 48	24	2.67	.868	.177
I tend not to dispense a generic drug if I do not see the medical representative regularly	>= 48	26	3.23	.863	.169
	< 48	24	3.42	.717	.146
I am reluctant to substitute an originator drug with a generic drug	>= 48	26	3.00	.800	.157
	< 48	24	3.25	.676	.138
Medical representatives supply me with valuable information	>= 48	26	2.85	.834	.164
	< 48	24	2.83	.761	.155
I dispense a generic drug according to a medical aid formulary	>= 48	26	3.15	.784	.154
	< 48	24	2.67	.917	.187
I dispense any available generic brand	>= 48	26	2.12	.993	.195
	< 48	24	2.13	1.035	.211

The result of the independent T-test on factor 1, was carried out using SPSS

From these tables can be seen that the level of significance is too high and therefore the different responses from the two groups cannot be regarded as significant. The same was found for the other constructs.

4.4.2 Results from Qualitative Study

4.4.2.1 Most Trusted Generic Pharmaceutical Companies

The qualitative study revealed that Aspen Pharmacare and Adcock-Ingram, (37 and 36 respectably) were the pharmaceutical companies that were mentioned the most by our respondents when asked about the generic companies they trusted the most. Cipla (26), Sandoz (17) and Zentiva (12) were also mentioned frequently. Other pharmaceutical companies that were mentioned were Pharmadynamics (6), Mylan-Phamaceuticals (4), Dr Reddy's (3), Ranbaxy (3), Pharmacia (2), Watson (2), Zydus (1) and Austell (1). Figure 4-4 indicates the companies that were deemed trustworthy by our sample:

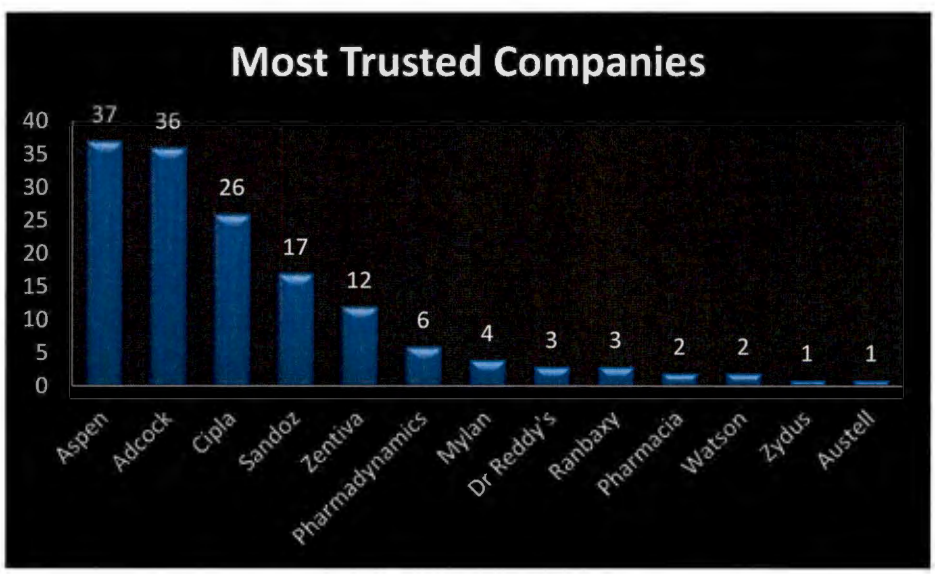

Figure 4-4 Companies indicated by sample as most trusted

In relation to our problem statement this result indicates a definitive distinction between the various generic companies. Thus, our respondents value some generic drug companies higher than others.

4.4.2.2 Reasons for Trusting a Generic Company

Reasons for the choices of the above mentioned companies are represented in Figure 4-5. It represents the words that were used most often to explain why certain generic companies are regarded superior to others. Medical representatives (17), company reputation (15) and product quality were the most frequently used reasons. Other reasons were product availability (9), company quality (5), pricing (4), product width (4), company growth (4) and customer feedback (2). Some miscellaneous reasons were also given: product data comparison, an understanding of retail, relationship with management and personal choice were indicated. Sandoz was mentioned as a company who invested in leadership-skill development amongst pharmacy students.

Figure 4-5 Reasons given for trusting a generic company

Thus, the qualitative study also suggested certain factors that generic companies should address in order to distinguish themselves from other companies. These are factors that build trust in a generic company as perceived by our sampled pharmacists.

4.4.2.3 Least Trusted Pharmaceutical Generic Pharmaceutical Companies

Ranbaxy was singled out as a company who was not trusted by our sample (mentioned 20 times). This is most probably because of some recent product recalls of their generic version of Lipitor (FDA, 2012; Siddiqui and Sikka, 2014). Other pharmaceutical companies who were mentioned were Zydus (5), **Dr Reddy's (5), Austell (4), Mylan (4),** Specpharm (3), Accord (3), Arrow (3), Actor (2), Adcock (2), Unichem (2), Bio-labs (2), Aurobinda (1), Cipla (1), Watson (1) and Pharmadynamics (1).

Figure 4-6 indicates the companies that were deemed the least trustworthy the most times by our sample. This is the perception of the sampled pharmacists and not that of the author of this paper:

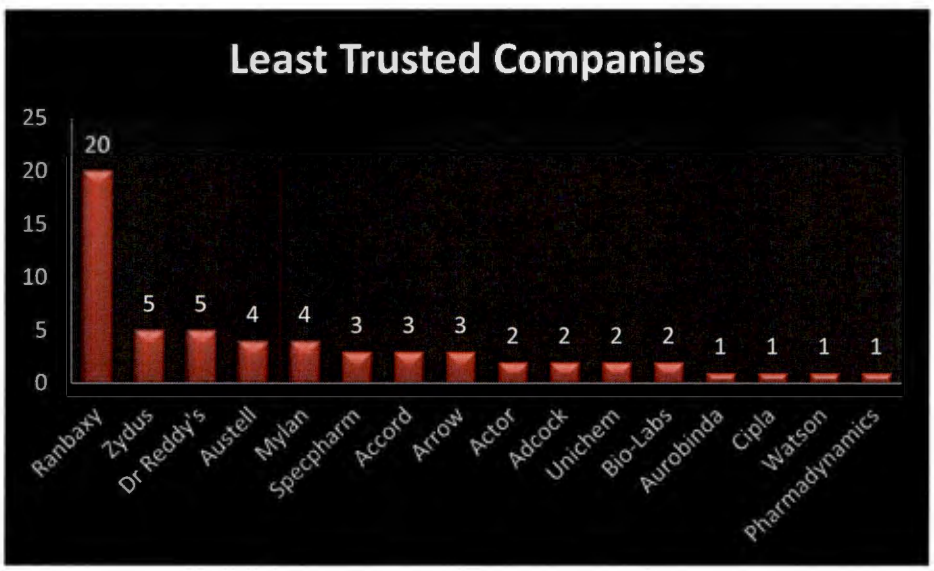

Figure 4-6 Companies indicated by sample as the least trusted

4.4.2.4 Reasons for Distrusting Generic Pharmaceutical Companies

Product related issues where mentioned most frequently (18) as the reason for distrusting a generic company. This included irregular availability, poor quality, recalls, and a too small product width. Disreputability (12) was twice attributed to companies because of the perception of being very new in the South African market. **Under "Country of origin" (8), the sub**-continent and Indian companies were mentioned. Medical representatives (5), personal choice (4) and customer feedback (3) were also mentioned. "Low priced" (2) relates to generic companies who undercut the market price by a huge margin to gain market share. This causes certain treatment classes to become unprofitable for the retail pharmacist. Figure 4-7 indicates the most common words that were used to explain why certain generic companies are regarded inferior to others.

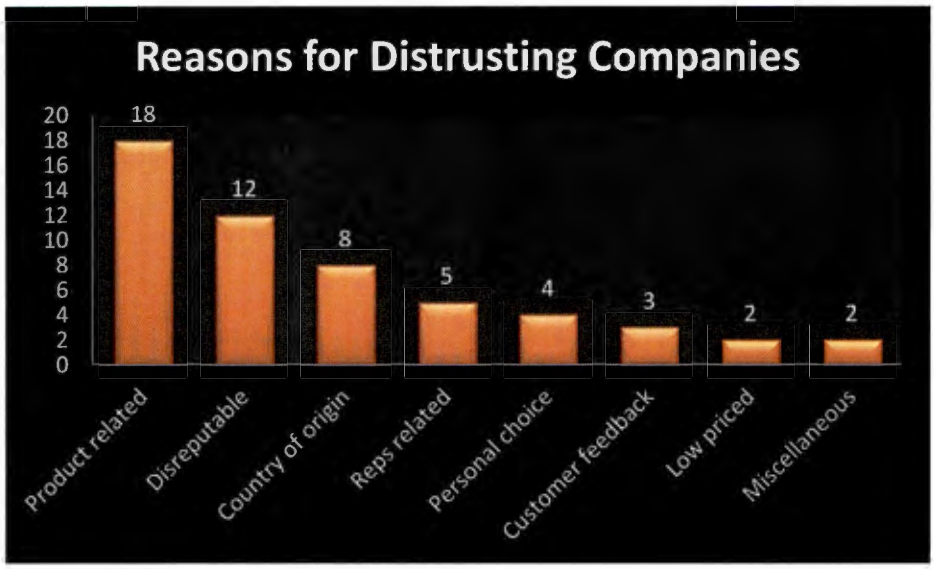

Figure 4-7 Reasons given for distrusting a generic company

The qualitative study identified some factors that addressed the problem statement in terms of negative perceptions about generic pharmaceutical companies. These factors influence the perception of our sampled pharmacists.

4.5 Chapter Summary

Below are the summary of the descriptive statistics of the nine variables that influence the decision making process of pharmacists (table. 4-30). It is sorted in descending order as scored by our sampled pharmacists. The influence of MR's was rated as a very high influence (3,00 SD 0,78) and also the biggest influence of the nine tested variables. The influences of medical aids (2,88 SD 0,87), company reputation (2,86 SD 0,87), differentiation between chronic diseases (2,82 SD 1,07) and the pharmacist's personal preference (2,76 SD 0,97) were rated as high influences. Drug price was rated as a slightly high influence (2,62 SD 0,93). Lesser influences were that of drug availability (2,41 SD 1,00) and the prescribing doctor (2,34 SD 0,4). The lowest influence according to our sample is that of the patient (2,23 SD 0,94).

Table 4-30 Summary of Influences According to the Descriptive Statistics

Variable	Mean	SD	Influence
The influence of medical representatives.	3,00	0,78	Very High
The influence of third party insurance (medical aids) protocol[b]	2,88	0,87	High
The influence of company reputation	2,86	0,87	High
The influence of chronic conditions that necessitates caution regarding generic substitution	2,82	1,07	High

Variable	Mean	SD	Influence
The influence of the pharmacist's personal preference	2,76	0,97	High
The influence of drug price	2,62	0,93	Slightly High
The influence of drug availability	2,41	1,00	Slightly Low
The influence of the prescribing doctor	2,34	0,84	Slightly Low
The influence of the patient	2,23	0,94	Low

These influences did not show any correlations. A factor analysis produced six constructs with reliable Cronbach's Alpha coefficients (indicated in brackets) which we identified as:

- Cost of generics (0,791)
- Perceived quality of generic drugs (0,722)
- Product knowledge (0,674)
- Influences of the pharmaceutical company (0,642)
- Effect of brand loyalty (0,534)
- Spur-of-the-moment-influences (0,563)

The results of a qualitative study that represented the personal perceptions of the pharmacists in our sample were produced.

In the final chapter the conclusions of the research will be discussed, some recommendations will be made and some of the limitations of the study will be discussed.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study thus far consisted of a literature study, followed by a quantitative and qualitative empirical study. In the design of the study it was envisaged to get a sample of 200 pharmacists to complete the questionnaire, but due to time constraints of the respondents, only 50 were received back. These responses were analysed using Excel 2013, SAS and SPSS and some conclusions can be drawn from the analyses. The principle component analysis yielded some factors that have tested reliable. The results can therefore be regarded as valid and reliable.

5.2 Conclusions from the Literature Study and the Empirical Study

From the literature study, nine factors have been found to affect the dispensing decisions of retail pharmacists regarding prescription drugs, and therefore also of generic drugs. Conclusions and recommendations regarding these factors will be presented in this section. Furthermore, the results of the literature study, the factor analysis and the quantitative study will be compared and measured against our primary and secondary research objectives.

5.2.1 The Influence of Drug Availability

Drug availability was mentioned by several sources to be one of the determining factors in the dispensing decision. When there are alternatives with the same active ingredient (either clones or generic drugs), studies have proven that pharmacists would easily switch from one supplier to another (IPF, 2013; IMS, 2011; Fitzsimons, 2000).

Our sample of pharmacists did not rate drug availability as very influential regarding their dispensing decisions (2,41 SD 1,00) while they do not seem to lose trust in a company whose products go out of stock (B1 = 2,14 SD 1,01). It would seem that although our sampled pharmacists did not react negatively towards a pharmaceutical company that goes out of stock, there is only a small tendency (B18 = 2,58 SD 0,93) that the pharmacist will be changing the patient back to the initial generic drug and that a company that goes out of stock, will possibly lose a bit of their market share to other market players.

Generic pharmaceutical companies should streamline their production of medication and spend time to develop excellent forecasting techniques to try and prevent out of stock situation. Although our sampled pharmacists are easier dissatisfied by other factors than out of stock

situations, the financial setbacks created by such situations are unhealthy for any production business. Although the factor analysis did not produce a construct to support drug availability, the qualitative study supported the literary findings.

5.2.2 The Influence of Medication Price

In the absence of major research expenses, generic companies can bring their product to the market at much lower prices than the originator companies. The relative difference in price between that of a generic and an originator drug is linked to the amount of market penetration that is achieved by the generic drug (Bredenkamp, 2011).

Our sample of pharmacists rated the influence of price on their dispensing habits as slightly high (2,62 SD 0,93). The influence on their choice of generic drug is believed to be due to the patient's reaction on having to pay a high medication price and thus, causes the sampled pharmacists to offer cheaper priced generic drugs (C9 = 2,64 SD 0.9 and C15 = 2.62 SD 0.88)

The factor analysis rendered a construct called "Cost of generics" which also indicates to the effect of pricing influences. However, during the qualitative study, medicine price were only mentioned four times as having a positive influence regarding their dispensing practices. The pharmaceutical companies should therefore craft their price strategy very carefully in order to achieve profit maximisation.

5.2.3 The Influence of Medical Representatives

The literature revealed that MR's are seen as a very important source of drug information. The type of information that MR's convey to doctors and pharmacists are connected to the success of the products they are representing (Tsiantou *et al.*, 2009; Dunne *et al.*, 2014). However, MR's should guard against only smooth-talking their products for medical practitioners do value all information regarding a certain drug, especially the side-effects and contra-indications.

Our sample of pharmacists rated the influence of MR's as the highest of all the variables (3,00 SD 0,78). Linking to the literary findings, the quality and regularity with which MR's detail the pharmacists will influence their dispensing decisions. MR's also played an important role in building the trust in their company's brands with pharmacists.

The factor analysis rendered a construct called "influences of the pharmaceutical company" which include the effect of MR's on the dispensing decisions. The qualitative study supported the literary findings that MR's had the biggest influence on the pharmacist's dispensing decisions.

Generic pharmaceutical companies should invest in the training and continuous improvement of their MR's for it seems from our study that it is the most influential factor.

5.2.4 The Influence of the Prescribing Doctor

Doctors initiate the drug treatment plan of patients. The choices doctors make regarding what medication to prescribe are based on the information they have about available drugs. The literature also cited the cost to the patient and the reputation of a generic company as influential in a doctor's decision making process (Tsiantou *et al*, 2009; Patel *et al*, 2012:5). The biggest influence a doctor can have on a pharmacist's dispensing choice is if the words "no generic substitution allowed" (or similar) is written on the prescription.

Our sampled pharmacists rated the influence of the prescribing doctor as slightly low (2,34 SD 0,84). Doctors influence the pharmacists' dispensing choices by prescribing generic drugs by its trade name (B5 = 2,68 SD 0,84). This indicates that the doctors our sampled pharmacists encounter most often are open for the use of generic drugs. Their trust in generic drug use might also further be supported by the fact that doctors do not disallow generic substitution too often (B10 = 2,38 SD 0,83).

However, neither the qualitative study, nor the factor analysis supported these findings. One might argue that "effect of brand loyalty" indicates the influence of a doctor and that "spur-of-the-moment-influences" can refer to ways a doctor might influence the pharmacist through a prescription.

Should the above be the case, then generic pharmaceutical companies should utilise their MR's to sway doctors in prescribing their drugs with increasing frequency.

5.2.5 The Influence of Third Party Insurance (Medical Aids) Protocol

Medical aids subject their clients who do not conform to the predetermined treatment list, to co-payments. Although the extent of the influence differs from patient to patient, depending on the benefits of their chosen plan, a significant change in drug-use patterns were noted in cases where a "generic-only" medical aid option are used (Christian-Haman *et al*., 2004).

Our sampled pharmacists rated the influence of medical aids on their dispensing decisions as high (2,88 SD 0,87). As is the case with the influence of medication price, this is also an influence that affects the pharmacists' dispensing choice through the patient's reaction to added expenses.

Again, the quantitative study and the factor analysis do not support these literary findings. It is suggest that generic pharmaceutical companies should strive to be included into as many medical aid formularies as possible to increase their chances of gaining market share.

5.2.6 The Influence of Company Reputation

The literature spoke several times about how medical practitioners perceived pharmaceutical companies from Eastern countries as inferior to European countries (Patel *et al.* 2012:5; Bate *et al.*, 2014). Although a pharmaceutical company can't change its country of origin, effort should be made to maintain an impeccable reputation regarding quality, for it influences the dispensing behaviour of pharmacists.

Linking to the literary findings, our sampled pharmacists also rated the influence of the company reputation as high (2,86 SD 0,87). Not all generic brands are trusted (C7 = 1,52 SD 0,83), because not all brands are deemed of equal quality (B15 = 3,04 SD 0,86).

From the factor analysis, two constructs indicated to company reputation as being influential. "Perceived quality of generics" and "Influences of the pharmaceutical company" supports the literary findings whilst the qualitative study also supported these findings (fig.4-5). Therefore, it is very important that pharmaceutical companies focus much of their money, time and effort on building trustworthy brands.

5.2.7 The Influence of the Patient

Several sources described how patient choices influence the dispensing of generic drugs. Quality, cost and safety was determined to be the biggest reasons for consumers to choose a drug. Age, race, gender, income and level of education were also cited as influential (Igbinovia, 2007; Gaither *et al.*, 2001:734; Figueiras *et al.*, 2009:319). Patients regarded advice from the doctor higher than that of the pharmacist while it was found that some patients choose generic substitution even though the doctor advised against it (Patel *et al.*, 2012:5; Chong *et al.*, 2011:88).

Our sampled pharmacists rated the influence of the patient on their dispensing decisions as low (2,23 SD 0,94). Patients are quite willing to substitute their medicine with generic drugs (B2 = 2,92 SD 0,75) but are not very educated about generic medicine (B17 = 2,06 SD 0,91 and C5 2,18 SD 0,95). These facts suggest that the pharmacists have more control over deciding what generic brand to dispense because the patients will rely on the pharmacist's suggestions.

Generic pharmaceutical companies are thus suggested to launch advertising campaigns that emphasise their quality and reliability with potential patients. They will not be allowed to advertise their products by name to the public but they may boost their image.

The factor analysis and the qualitative study did not find conclusive support for this influence.

5.2.8 The Influence of Chronic Conditions that Necessitates Caution Regarding Generic Substitution

Epilepsy treatment was cited by many sources as a condition where caution is needed when generic substitution is considered (Berg *et al.*, 2008:528; Crawford *et al.*, 2006:175). This is due to the effect on quality of life in the event of treatment failure and influences the dispensing decision regarding generic substitution.

Pharmacists from our sample also valued different chronic condition with different amounts of respect (2,82 SD 1,07). The pharmacists that were sampled regarded epilepsy as the chronic condition which medicine they would least likely generically substitute while high cholesterol and an under active thyroid gland, as the diseases for which generic substitution are most likely to happen.

No conclusive correlating evidence was received from the factor analysis and the quantitative study to support these findings.

To take advantage of this influence, generic pharmaceutical companies should identify potential illnesses with little other generic alternatives and enter the market with a huge force.

5.2.9 The Influence of the Pharmacist's Personal Preference

Many sources cited the openness of pharmacists towards generic substitution (Dunne *et al.*, 2014:221; Chong *et al.*, 2011:88). Being the final link between the patient and medicine, the pharmacists' personal preference is an important factor in the ultimate decision regarding generic substitution.

The pharmacists from our sample rated the influence of the pharmacist's personal preference as high (2,75 SD 0,97). They were very willing to initiate generic substitution and this support the literary findings. Drug taste was not considered during the dispensing process and thus not seen as influential. However, it was determined that a lack of the knowledge regarding product taste existed amongst our sample, making one wonder what their response would be, should the actual taste be known to them.

The factor analysis indicated three constructs that supported the pharmacists' personal preference as an influential factor. "Perceived quality of generics", "Product knowledge" and "effect of brand loyalty" is all relating to the pharmacist's personal preference. As the qualitative study represents a combination of the views of all the pharmacists who partake in the survey, all of the mentioned factors should be used by generic pharmaceutical companies to help create a strategy aimed at convincing pharmacists to dispense their drugs.

5.3 Limitations of the Study

The results of our study were seriously hindered by the small sample size. It prevented us from drawing conclusions regarding the factors that influence the dispensing decisions of pharmacists from pharmacies in other regions than Pretoria. In fact, it is conceded that the results are only relevant to the studied sample.

There were also some limitations experienced regarding the questionnaire. The factor analysis rendered some irrelevant factors that made it difficult to fully explain the constructs.

This study tried to identify concrete factors that directly influence the decision making process during the dispensing process. However, it is difficult to precisely assign the exact reason why a pharmacist made a certain choice regarding generic substitution. Factors such as the volume of prescriptions that has to be dispensed during a specific time or the mood of the pharmacist were not covered in this study and might have an influential effect.

5.4 Recommendations for Future Studies

Firstly, this study should be repeated with a bigger sample size in order to return significant statistical results. Also, the questionnaire should be revised to better test the impact of each influential factor.

In order to get a more accurate explanation for the influences of the dispensing decisions, it is suggested that an extensive qualitative research method should be carried out where a pharmacist is observed while busy dispensing. Immediately after the dispensing process, the pharmacist should be asked for the reason why a certain choice of generic drug was made and the response noted. This method however, will be very time consuming and invading the privacy of the respondent's work space.

Further, it is recommend that a model should be created that helps predicting the success a generic pharmaceutical company should they concentrate on manipulating the influential factors to fit them.

5.5 Summary

The conclusion of our study was represented in this, the final chapter. It is a culmination of the literature study, the research methodology and the research results. Some factors that play a part in the dispensing process of the pharmacists were identified. Values were attributed to the influences that indicate the extent of the influence that is exercised on the dispensing pharmacist. Some conclusions from our study are:

- The influence of MR's was tested as being the most influential on the pharmacist's decision making process.

- The factor that was determined to be the least influential are the influence of the patient.

BIBLIOGRAPHY

Auton, F. 2004. The advertising of pharmaceuticals direct to consumers: a critical review of the literature and debate. *International journal of advertising*, 23(1):5-22.

Bate, R., Ginger, Z.J., Aparna, M., & Amir, A. 2014. Poor quality drugs and global trade: a pilot study. http://www.nber.org/papers/w20469.pdf Date or access: 5 Dec 2014.

Berg, M.J., Gross, R.A., Tomaszewski, K.J., Zingaro, W.M. & Haskins, L.S. 2008. Generic substitution in the treatment of epilepsy: case evidence of breakthrough seizures. *Neurology*, 71(7):525-530.

Black, G. 2013. Generic substitution and the Consumer Protection Act: a pharmacist's perspective. *The South African pharmacy journal*, 80(8):35-38.

Bredenkamp, J. 2011. The effect of generic medicine competition on the market share growth and pricing of originator brand medicine in the South African private pharmaceutical market. Stellenbosch: US (MBA – Dissertation).

Chong, C.P., Hassali, M.A., Bahari, M.B. & Shafie, A.A. 2011. Generic medicine substitution practices among community pharmacists: a nationwide study from Malaysia. *Journal of public health*, 19(1):81-90.

Christian-Herman, J., Emons, M. & George, D. 2004. Effects of generic-only drug coverage in a Medicare HMO. http://www.ncbi.nlm.nih.gov/pubmed/15471765 Date of access: 30 Nov. 2014.

Council of Medical Schemes (CMS). 2013. Annual report. http://www.medicalschemes.com/Publications.aspx Date of access: 1 Sept. 2014.

Council of Medical Schemes (CMS). 2014. Prevalence of chronic diseases in the population covered by medical aid schemes in South Africa. http://www.medicalschemes.com/files/Research%20Briefs/PrevalanceOfChronicDiseasMAS2007_2012.pdf Date of access: 08 Dec. 2014.

Crawford, P., Feely, M., Guberman, A. & Kramer, G. 2006. Are there potential problems with generic substitution of antiepileptic drugs? a review of issues. *Seizure*, 15(3):165-176.

Du Plooy, H. 2012. Measuring brand loyalty in the Pharmaceutical industry of South Africa. Potchefstroom: NWU-PUKKE. (MBA – Dissertation).

Dunne, S., Shannon, B., Hannigan, A., Dunne, D. & Cullen, W. 2014. Physicians and pharmacist perceptions of generic medicines: what they think and how they differ. *Health policy*, 116(2):214-223.

Dylst, P. & Simoens, S. 2011. Does the market share of generic medicines influence the price level? a European analysis. *Pharmacoeconomics*, 29(10):875-882.

FDA (United States Food and Drug Administration). FDA statement on the Ranbaxy atorvastatin recall. http://www.fda.gov/Drugs/DrugSafety/ucm329951.htm Date of access: 12 Jan. 2015.

Field, A. 2011. Discovering statistics using SPSS. 3rd ed. Los Angeles, CA: Sage.

Fischer, E. 2011. The patent cliff: rise of the generics. http://www.pharmaceutical-technology.com/features/featurethe-patent-cliff-rise-of-the-generics/ Date of access: 3 Jul. 2013.

Fitzsimons, G.J. 2000. Consumer response to stockouts. *Journal of consumer research*, 27(2):249-266.

Figueiras, M.J., Alves, N.C., Marcelinoa, D., Cortes, M.A., Weinman, J. & Horne, R. 2009. Assessing lay beliefs about generic medicines: development of the generic medicines scale. *Psychology, health & medicine*, 14(3):311–321.

Gaither, C. A., Kirking, D. M., Ascione, F. J., & Welage, L. S. 2001. Consumers' views on generic medications. *Journal of the American pharmaceutical association*, 41(5):729-736.

Harding, D. 2010. Gaining market share in the generic drug industry through acquisitions and partnerships. http://thomsonreuters.com/products/ip-science/04_013/newport-deals.pdf Date of access: 3 Jul. 2013.

Harris, B., Goudge, J., Ataguba, J.E., McIntyre, D., Nxumalo, N., Jikwana, S. & Chersich, M. 2011. Inequities in access to health care in South Africa. *Journal of public health policy*, 32(1):102-123.

Igbinovia, M.E. 2007. The perceived benefits of generic versus branded medicine. Pretoria: UP. (MBA – Dissertation).

IMS (IMS Institute for healthcare informatics). 2011. Drug shortages: a closer look at products, suppliers and volume volatility.

http://www.imshealth.com/deployedfiles/ims/Global/Content/Insights/IMS%20Institute%20for%20Healthcare%20Informatics/Static%20Files/IIHI_Drug_Shortage_Media_ExecSumm.pdf Date of access: 20 Nov. 2014.

IMS (IMS Institute for healthcare informatics). 2013. The Global use of medicines: outlook through 2017. www.theimsinstitute.org Date of access: 13 Apr. 2014.

IMS (IMS Institute for healthcare informatics). 2014. Global and local pharma trends: an IMS perspective. http://www.utipharma.co.za/Documents/UTi%20Healthcare%20Forum%202014/UTI%20forum%20October%202014%20-%20IMS.pdf Date of access: 16 Nov 2014.

IPF (International Pharmaceutical Federation). 2013. Report of the international summit on medicines shortage. http://www.fip.org/files/fip/publications/FIP_Summit_on_Medicines_Shortage.pdf Date of access: 20 Nov. 2014.

Medical Schemes Act ***see*** South Africa

Medicines and Related Substance Control Act ***see*** South Africa.

Medicines Control Council of South Africa (MCC). 2003. Generic substitution. http://www.geocities.ws/ganaish/MCCGeneric.doc Date of access: 5 Dec. 2014.

Medicines Control Council of South Africa (MCC). 2010. Project conclusion report. http://www.sarrahsouthafrica.org/LinkClick.aspx?fileticket=AW7KP7zEHKM%3D&tabid=2339 Date of access: 6 Dec. 2014.

Medicines Control Council of South Africa (MCC). 2014. Biostudies. http://www.mccza.com/genericDocuments/2.06_Biostudies_Mar14_v6_showing_changes.pdf Date of access: 5 Dec. 2014.

Morgan, S., Grootendorst, P., Lexchin, J., Cunningham, C. & Greyson, D. 2012. The cost of drug development: a systematic review. *Health policy*, 100(1):4-17.

National Association of Pharmaceutical Manufacturers (NAPM). 2014. Member list. http://napm.co.za/member-list/ Date of access: 22 Aug. 2014.

Pallant, J. 2010. SPSS survival manual: a step by step guide to data analysis using SPSS. Berkshire: McGraw-Hill.

Patel, A., Gauld, R., Norris, P., & Rades, T. 2012. Quality of generic medicines in South Africa: perceptions versus reality – a qualitative study. *BMC health services research*, 12(1):1-8.

Pharmacy Act ***see*** South Africa.

Sekran, U. & Bougie, R. 2013. Research methods for business: a skill-building approach. 6th ed. Sussex: Wiley.

South Africa. 1965. Medicines and Related Substance Control Act 101 of 1965.

South Africa. 1974. Pharmacy Act 53 of 1974.

South Africa. 1998. Medical Schemes Act 131 of 1998.

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

SAPC (The South African Pharmacy Council). 2014. Statistics for registered persons and organisations – persons by province. http://www.pharmcouncil.co.za/B_StatsRolesByProv.asp Date of access: 8 Dec. 2014.

Siddiqui, Z. & Sikka, K. 2014. Ranbaxy recalls some batches of generic Lipitor in latest quality blow. *Reuters*, 8 March. http://www.reuters.com/article/2014/03/08/us-ranbaxylab-lipitor-usa-recall-idUSBREA2703420140308 Date of access: 15 Jan. 2015.

SMD (Stedman's Medical Dictionary). 2006. Generic substitution. http://www.medilexicon.com/medicaldictionary.php?t=86105 Date of access: 3 Jul. 2013.

Tsiantou, V., Zavras, D., Kousoulakou, H., Geitona, M. & Kyriopoulos, J. 2009. Generic medicines: Greek physicians' perceptions and prescribing practices. *Journal of clinical pharmacy and therapeutics*, 34(5):547 – 557.

Van der Merwe Smit, E. & Bredenkamp, J. 2013. Originator and generic medicine: pricing and market share. *International journal of pharmaceutical and healthcare marketing*, 7(2):104-119.

WHO (The World Health Organisation). 2013. Pharmaceutical Industry. http://www.who.int/trade/glossary/story073/en/ Date of access: 3 Jul. 2013.

WHO (World Health Organisation). 2014. Global health expenditure database. http://apps.who.int/nha/database/Select/Indicators/en Date of access: 2 Sept. 2014.

Williams, B., Brown, T., & Onsman, A. 2012. Exploratory factor analysis: a five-step guide for novices. *Australasian journal of paramedicine,* 8(3):1-13.

ANNEXURE 1

QUESTIONNAIRE WITH IDENTIFICATION LABLES FOR NINE SECONDARY OBJECTIVES

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

POTCHEFSTROOM BUSINESS SCHOOL

An Analysis of the Decisions Regarding the Dispensing of Generic Prescription Drugs by Selected Pharmacies

Prescription drugs are a major global industry, worth an estimated US$1 trillion a year and the potential to grow by a further US$200 billion over the next two years. Despite the highly competitive and regulated environment that exists in the generic prescription drug market, many companies are continuously trying to enter the playing field. How does a generic company then distinguish themselves from the rest?

Dear Colleague,

Thank you for your participation in this research. Please feel free to contact me regarding any questions or for the results of the study.

Yours Sincerely
Stefan Pretorius
izaksp@gmail.com **fax**: 0866234617
082 562 6735

Section A

Demography

1. Age at your last birthday

.....

2. Gender

Male	1	Female	2

3. Name of pharmacy group you work for

Alpha Pharm	Arrie Nel	Ring	Script Savers	Independent / Other
1	2	3	4	5

4. Years retail pharmacy experience after community service (or working as a qualified pharmacist if community service was not instated yet)

0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	More than 40
1	2	3	4	5	6	7	8	9

5. How do you perceive the economic class of the majority of your clients? **Where 1 is very poor and 4 very rich**.

1	2	3	4

Section B

	Where 1 is seldom and 4 is usually	1	2	3	4
1 Bes	I lose trust in a generic company if some of their drug lines go out of stock	1	2	3	4
2 Price	Patients are willing to substitute their medication with generic drugs	1	2	3	4
3 Rep	My choice of a generic drug is influenced by the appearance of the representative of that company	1	2	3	4
4 Med	I encounter scripts where I have to dispense Nappi code specific drugs	1	2	3	4
5 Doc	I receive prescriptions where the doctor asks for a generic product by name	1	2	3	4
6 Pharm	I distinguish between the quality of clones and that of generic drugs	1	2	3	4
7 Cond	I distinguish between different illnesses when considering interchanging between generic brands	1	2	3	4
8 Pharm	I know the taste of dissolvable drugs and suspensions	1	2	3	4
9 Pharm	I regularly offer to switch patients between generic versions of the drug that they were offered initially	1	2	3	4
10 Doc	I receive prescriptions where the prescriber disallow generic substitution	1	2	3	4
11 Pharm	Whenever a patient receives medication, I offer him/her the option of generic substitution	1	2	3	4
12 Med	I dispense a generic drug according to a medical aid formulary	1	2	3	4
13 Rep	I have a good relationship with medical representatives	1	2	3	4
14 Pharm	I dispense any available generic brand	1	2	3	4
15 Comp	I distinguish between the quality of generic drugs of different drug manufacturers	1	2	3	4
16 Price	When a patient incurs co-payments and does not complain about it, I initiate generic substitution	1	2	3	4
17 Pat	Patients ask me for generic drugs by their trade name	1	2	3	4
18 Bes	When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug	1	2	3	4
19 Rep	Medical representatives supply me with valuable information	1	2	3	4
20 Doc	I normally end up dispensing exactly the brand of drugs that are written on the script	1	2	3	4
21 Price	While reading the script, I consider the best priced generic	1	2	3	4
22 Pharm	Whenever a new generic drug (relevant to the patient's condition) enters the market, I offer him/her the option of generic substitution	1	2	3	4
23 Pharm	I want to see the results of effectivity studies before I consider a generic drug	1	2	3	4
24 Rep	Medical representatives provide me with data that compares the effectiveness of their drug to the originator and other generic drugs	1	2	3	4
25 Comp	I distinguish between the countries of origin of generic drugs	1	2	3	4

	when I consider dispensing a generic drug				
26 Pharm	I dispense generic drugs that are favoured by the company I work for	1	2	3	4

Section C

	Where 1 is strongly disagree and 4 is strongly agree	1	2	3	4
1 Bes	I only substitute between different generic options in out-of-stock situations	1	2	3	4
2 Price	Cost is the major determining factor when I decide on a generic substitute	1	2	3	4
3 Pharm	I take the taste of a generic drug into account when I decide if I will dispense it	1	2	3	4
4 Pharm	While reading a prescription, I consider only generic drugs I trust	1	2	3	4
5 Pat	Patients are educated about generic drugs	1	2	3	4
6 Rep	Generic drug companies focus more on the appearance of their representatives than their knowledge	1	2	3	4
7 Pharm	I trust all generic drugs	1	2	3	4
8 Pharm	I suggest better tasting drugs or suspensions to patients	1	2	3	4
9 Price	I only substitute with a better priced generic drug when patients complain about high co-payments	1	2	3	4
10 Rep	I dispense generic drugs that I am regularly detailed about	1	2	3	4
11 Rep	I tend not to dispense a generic drug if I do not see the medical representative regularly	1	2	3	4
12 Pat	Although the patient is the consumer of drugs, they are not the chooser or drugs	1	2	3	4
13 Pharm	Generic drugs are not as effective as the originator	1	2	3	4
14 Doc	Doctors have the greatest influence on the brand of generic drug that I dispense	1	2	3	4
15 Price	Patients do not mind incurring co-payments for higher priced generic drugs	1	2	3	4
16 Rep	Well informed medical representatives build my trust in their company	1	2	3	4
17 Pharm	I am reluctant to substitute an originator drug with a generic drug	1	2	3	4
18 Pat	The appearance of the patient influences me to offer a cheaper generic or a more expensive generic	1	2	3	4
19 Med	Medical Aids are a major influence on the choice of generic drug I dispense	1	2	3	4
20 Rep	I favour a generic drug brand if I have a good relationship with the medical representatives of that company	1	2	3	4
21 Comp	The country of origin of a generic drug company has a big influence on my decision regarding generic substitution	1	2	3	4

Section D

I don't mind interchanging between generic drugs for a patient with any of the diseases on the Chronic Disease List (CDL) (**Where 1 is strongly disagree and 4 is strongly agree):**

	Condition	**1**	**2**	**3**	**4**
1	Asthma	1	2	3	4
2	Coronary artery disease	1	2	3	4
3	Diabetes (type 1)	1	2	3	4
4	Diabetes (type 2)	1	2	3	4
5	Epilepsy	1	2	3	4
6	HIV	1	2	3	4
7	Hyperlipidaemia	1	2	3	4
8	Hypertension	1	2	3	4
9	Hypothyroidism	1	2	3	4
10	Bipolar Mood Disorder	1	2	3	4

Annexure 2

KEY TO QUESTIONNAIRE WITH THE DIFFERENT QUESTIONS SUPPORTING THE NINE SECONDARY OBJECTIVES GROUPED TOGETHER

Key

Bes – The influence of Drug Availability

Section B

1 Bes	I lose trust in a generic company if some of their drug lines go out of stock
14 Bes	I dispense any available generic brand
18 Bes	When a generic drug that went out of stock, becomes available again, I switch the patient back to that drug

Section C

1 Bes	I only substitute between different generic options in out-of-stock situations

Price – The Influence of Medication Price

Section B

21 Price	While reading the script, I consider the best priced generic

Section C

2 Price	Cost is the major determining factor when I decide on a generic substitute
9 Price	I only substitute with a better priced generic drug when patients complain about high co-payments
15 Price	Patients do not mind incurring co-payments for higher priced generic drugs

Rep – The Influence of Medical Representatives

Section B

13 Rep	I have a good relationship with medical representatives
19 Rep	Medical representatives supply me with valuable information
24 Rep	Medical representatives provide me with data that compares the effectiveness of their drug to the originator and other generic drugs

Section C

10 Rep	I dispense generic drugs that I am regularly detailed about

11 Rep	I tend not to dispense a generic drug if I do not see the medical representative regularly
16 Rep	Well informed medical representatives build my trust in their company
20 Rep	I favour a generic drug brand if I have a good relationship with the medical representatives of that company

Other Questions Regarding Medical Representatives

3 Rep	My choice of a generic drug is influenced by the appearance of the representative of that company
6 Rep	Generic drug companies focus more on the appearance of their representatives than their knowledge
23 Pharm	I want to see the results of effectivity studies before I consider a generic drug

Doc – The Influence of the Prescribing Doctor

Section B

5 Doc	I receive prescriptions where the doctor asks for a generic product by name
10 Doc	I receive prescriptions where the prescriber disallow generic substitution
20 Doc	I normally end up dispensing exactly the brand of drugs that are written on the script

Section C

14 Doc	Doctors have the greatest influence on the brand of generic drug that I dispense

Med – The Influence of Third Party Insurance (medical aids) Protocol

Section B

4 Med	I encounter scripts where I have to dispense Nappi code specific drugs
12 Med	I dispense a generic drug according to a medical aid formulary

Section C

15 Price	Patients do not mind incurring co-payments for higher priced generic drugs
19 Med	Medical Aids are a major influence on the choice of generic drug I dispense

Comp – The Influence of Company Reputation

Section B

15 Comp	I distinguish between the quality of generic drugs of different drug manufacturers
25 Comp	I distinguish between the countries of origin of generic drugs when I consider dispensing a generic drug

Section C

21 Comp	The country of origin of a generic drug company has a big influence on my decision regarding generic substitution
4 Pharm	While reading a prescription, I consider only generic drugs I trust

Related Questions

7 Pharm	I trust all generic drugs

Pat – The Influence of the Patient

Section B

2 Pat	Patients are willing to substitute their medication with generic drugs
17 Pat	Patients ask me for generic drugs by their trade name

Section C

5 Pat	Patients are educated about generic drugs
12 Pat	Although the patient is the consumer of drugs, they are not the chooser or drugs
18 Pat	The appearance of the patient influences me to offer a cheaper generic or a more expensive generic

Cond – The Influence of Chronic Conditions that Necessitates Caution Regarding Generic Substitution

Section B

7 Cond	I distinguish between different illnesses when considering interchanging between generic brands

Section D

	Condition
1	Asthma
2	Coronary artery disease
3	Diabetes (type 1)
4	Diabetes (type 2)
5	Epilepsy
6	HIV
7	Hyperlipidaemia
8	Hypertension
9	Hypothyroidism
10	Bipolar Mood Disorder

Pharm – The Influence of the Pharmacist's Personal Preference

Section B

9 Pharm	I regularly offer to switch patients between generic versions of the drug that they were offered initially
11 Pharm	Whenever a patient receives medication, I offer him/her the option of generic substitution
16 Price	When a patient incurs co-payments and does not complain about it, I initiate generic substitution
22 Pharm	Whenever a new generic drug (relevant to the patient's condition) enters the market, I offer him/her the option of generic substitution
26 Pharm	I dispense generic drugs that are favoured by the company I work for

Section C

13 Pharm	Generic drugs are not as effective as the originator
17 Pharm	I am reluctant to substitute an originator drug with a generic drug

Other Pharmacists Related Questions

6 Pharm	I distinguish between the quality of clones and that of generic drugs
8 Rep	I know the taste of dissolvable drugs and suspensions

3 Pharm	I take the taste of a generic drug into account when I decide if I will dispense it
8 Pharm	I suggest better tasting drugs or suspensions to patients