AN EXPLORATIVE STUDY OF CONSUMERS' ATTITUDES TOWARDS GENERIC MEDICATIONS

by

Reinhard Tolken

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SUPERVISOR: MS. INGRID LYNCH

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Abstract

Objective: To explore consumer attitudes towards generic medication.

Methods: A quantitative method was used in this explorative study to assess consumer attitudes towards generic medication. A survey design was utilized. A questionnaire was devised that comprised four sections which assessed attitudes towards generic medication. A Living Standards Measure (LSM) assessed socio-economic status. Convenience sampling resulted in the recruitment of 266 respondents. Statistical analysis of the data included non-parametric (Chi-square and correlation analysis) and parametric statistics (factor analysis, MANOVA and regression analysis).

Results: More than half the respondents (54.8%) report preference for original medication over generic medication. A large percentage believes there is a place for generic medication (88.9%). The majority (95%) indicate they would purchase generic medication if it proves to be just as effective as the original product. More respondents (91.2%) trust physician over pharmacist recommendations to purchase generics. More than half the respondents (57.9%) would purchase generic medication if recommended by friends but they trust their family members more (68.6%). The findings indicate that respondents generally hold favourable attitudes towards the efficacy of generic medication despite the fact that slightly more than half prefer original medication. Respondents indicate that pricing and branding influence their attitudes towards generic medication.

Chi-square analyses indicated that more men would choose original medication and more women would choose generic medication. Age differences revealed that the older consumer is more likely to choose generic medication. White respondents indicated a preference for generic medication, while Black respondents indicated that they prefer original medication. Middle-class (LSM 5-8) and middle-upper class (LSM 9) respondents prefer generic medication, while upper class (LSM 10) respondents prefer original medication. The correlation analysis found no significant relationship between medical aid status and original or generic medication choice.

A principle component factor analysis produced nine factors based on the items in the questionnaire, with only eight factors being subjected to further testing. These eight factors were subjected to a MANOVA and tested against gender and race with no significant differences found between men and women and between Black and White respondents. These eight factors were also subjected to further testing by means of regression analysis where it was found that three of the eight factors were statistically significant. These three factors can be productively explored in future research.

Implications: This explorative study focused on consumer attitudes towards generic medication, however, it was identified that the consumer valued their physician's recommendation for type of medication. For future studies, it would be beneficial to explore medical personnel (physician and pharmacist) attitudes towards generic medication as these individuals play an important role in product choice.

Keywords: Generic medication, generics, original medication, attitudes, elaboration likelihood model, ELM, Living Standards Measure, LSM, consumer psychology, consumer attitudes

Table of Contents

Acknowledgements ii
Chapter 1 1
1.1 Introduction 1
1.2 Main Concepts 2
1.2.1 Attitudes 2
1.2.2 Medication: original and generic 3
1.3 The Aim and Objectives of the Study 4
1.3.1 Aim 4
1.3.2 Objectives 4
1.4 Theoretical Framework 5
1.5 Methodology 5
1.6 Chapter Outline 5
Chapter 2 – Literature Review 7
2.1 Introduction 7
2.2 An Overview of Generic Medication 7
2.2.1 Defining generic medication 7
2.2.2 How generic medication originated 8
2.2.3 Medical insurance companies' approach to generic medication 8
2.2.4 International substitution with generic medication 9
2.2.5 South African policy and generic medication 10
2.3 Attitudes towards generic medication 11
2.3.1 The consumer: 12
2.3.1.1 Understanding and attitudes towards generic medication 12
2.3.1.1.1 General ideas surrounding generic medication 12
2.3.1.1.2 Cost saving by using generic medication 13
2.3.1.1.3 Side effects, safety and efficacy 14
2.3.1.1.4 Quality of generic medication 14
2.3.1.2 Demographic variables and consumers' attitudes 15
2.3.1.2.1 Age and gender 15

2.3.1.2.2 Socio-economic status 16
2.3.1.2.3 Race 16
2.3.1.3 Recommendation and pharmaceutical branding 17
2.3.2 The pharmacist and physician: 18
2.3.2.1 The pharmacist 18
2.3.2.2 The physician 19
2.4 Conclusion 20
Chapter 3 – Theoretical Approach 22
3.1 Introduction 22
3.2 Defining Attitudes 22
3.3 The ELM 24
3.3.1 Introduction 24
3.3.2 A brief description of the ELM as illustrated above 26
3.3.3 Postulate 1 27
3.3.4 Postulate 2 27
3.3.5 Postulate 3 29
3.3.6 Postulate 4 32
3.3.7 Postulate 5 35
3.3.8 Postulate 6 35
3.3.9 Postulate 7 36
3.3.10 Placing the ELM in a pharmaceutical context 38
3.3.10.1 The central route of processing 39
3.3.10.2 The peripheral route of processing 39
3.3.11 Conclusion 40
Chapter 4 – Methodology 42
4.1 Introduction 42
4.2 Quantitative Research Methodology 42
4.3 Survey Research 43
4.4 Sampling Method 45

4.5. Sample Description 46
4.5.1 Sample obtained 46
4.5.2 Data collection 46
4.5.3 Descriptive statistics 46
4.6 Ethical Considerations 47
4.6.1 Informed consent 47
4.6.2 Confidentiality and anonymity 47
4.6.3 Voluntary participation 47
4.7 Analysis 48
4.7.1 Chi-square 48
4.7.2 Factor analysis 50
4.7.3 MANOVA 52
4.7.4 Regression analysis 52
4.8 Evaluation of the Psychometric Properties of the Instrument 53
4.8.1 Reliability 53
4.8.2 Validity 56
Chapter 5 – Results 59
5.1 Introduction 59
5.2 The Questionnaire 59
5.3 Overview of Statistics 60
5.4 Descriptive and Non-parametric Statistics 62
5.4.1. Demographic and general information 62
5.4.2 Descriptive information regarding consumer attitudes towards generic medication 63
5.4.2.1 Attitudes regarding efficacy of generic medication 63
5.4.2.2 Recommendations by physicians, pharmacists and friends / family 63
5.4.2.3 Respondents' willingness to ask for cheaper alternative medication 64
5.4.2.4 Pricing of generic and original medication 64
5.4.2.5 Respondents' ideas surrounding prescriptions and product branding 65

5.4.3 Non-parametric analysis of demographic data 65
5.4.3.1 Gender and purchase behaviour 66
5.4.3.2 Age and product purchased 67
5.4.3.3 Race and product purchased 68
5.4.3.4 Gender and medical aid status 69
5.4.3.5 Age and medical aid status 71
5.4.3.6 Race and medical aid status 71
5.4.3.7 Living Standards Measure (LSM) 72
5.5 Parametric Statistics 76
5.5.1 Factor analysis 76
5.5.2 MANOVA 81
5.5.3 Regression 82
Chapter 6 – Discussion, Recommendations and Conclusion 86
6.1 Introduction 86
6.2 Overview 86
6.3 Demographics 86
6.4 Descriptive Information 87
6.4.1 Attitudes regarding efficacy of generic medication 87
6.4.2 Recommendations by physicians, pharmacists and friends / family 87
6.4.3 Respondents' willingness to ask for cheaper alternative medication 88
6.4.4 Pricing of generic and original medication 89
6.4.5 Respondents' ideas surrounding prescriptions and product branding 89
6.5 Non-parametric Tests 90
6.5.1 Gender 90
6.5.1.1 Gender and medication choice 90
6.5.1.2 Gender and medical aid status 91
6.5.2 Age 92
6.5.2.1 Age category and medication choice 92
6.5.2.2 Age and medical aid status 93

6.5.3 Race 94
6.5.3.1 Race and medication choice 94
6.5.3.2 Race and medical aid status 95
6.5.4 LSM non-parametric test results 96
6.6 General Discussion 98
6.7 Parametric Statistics 101
6.7.1 Factor analysis 102
6.7.2 MANOVA 103
6.7.3 Regression analysis 104
6.8 Limitations of the Study 104
6.9 Recommendations for Future Studies 105
6.10 Conclusion 106
References 107
Appendix A 117

List of Figures

Fig.1. The ELM, From Petty and Cacioppo, (1986) 25
Fig.2 Scree Plot: First order factor analysis 78
Fig.3 Scree Plot: Second order factor analysis 80

List of Tables

Table1. The SAARF Universal LSM 50
Table 2. Inter-item correlation of section 2 of the questionnaire 54
Table 3. Reliability score for section 3 of the questionnaire 54
Table 4. Reliability score for section 4 of the questionnaire 55
Table 5. Overall reliability score (without LSM) 55
Table 6. Gender and purchase behaviour cross-tabulation 67
Table 7. Age and product purchased cross-tabulation 68
Table 8. Race and product purchased cross-tabulation 69
Table 9. Gender and medical aid status cross-tabulation 70
Table 10. Correlation between Medical aid status and choice of product 70
Table 11. Age and medical aid status cross-tabulation 71
Table 12. Race and medical aid status cross-tabulation 72
Table 13. LSM and product purchase cross-tabulation 75
Table 14. Total variance explained of the first order factor analysis 78
Table 15. Total variance explained of the second order factor analysis 79
Table 16. Regression analysis model summary 84
Table 17. Regression analysis coffients significance 84
Table 18 Summary of gender and medication choice 90
Table 19. Summary of gender and medical aid status 92
Table 20. Summary of age category and medication choice 92
Table 21. Summary of age and medical aid status 94
Table 22. Summary of race and medication choice 94
Table 23. Summary of race and medical aid status 96
Table 24. Summary of LSM grouping and medication choice 97

Chapter 1

1.1 Introduction

The following study is concerned with consumers' attitudes towards generic medication. The motivation for this study stemmed, initially, from the researcher's own curiosity towards the topic. This developed in response to personal working experience that took place in a pharmacy, when, often, customers were asked if they were prepared to try a generic product or if they would prefer using the original branded product. What was of interest was how consumers' responses to this question varied. Some of the consumers indicated they would try generic medication while others blatantly rejected these products based on very strong attitudes and beliefs towards original medication.

This initial curiosity was further strengthened when a search of the literature indicated a paucity of research on consumers' attitudes towards generic medication. It was believed that a better understanding of the attitudes consumers have, regarding generic pharmaceuticals, would be beneficial to the pharmaceutical industry, physicians and pharmacists.

Some, if not all of us, have, at one time or another, been in a pharmacy requesting a certain product. Often this leads to the pharmacist or pharmacist's assistant asking if we would prefer the original or generic version thereof. Being confronted with this choice, how will one know if the right choice has been made? Should the choice of product be based on its reputability, knowing that it works but is expensive, or does one choose the generic equivalent, which costs much less?

According to Stoppler (2005), almost half of all prescriptions in the US are filled with generic medication. But the question still remains, are generic medications just as effective as the original branded versions? The answer to this question, according to Stoppler (2005), is that generic medications are copies of the original branded versions. The dosages, intended uses and even side-effects are the same. The administration, risks, safety aspects and the strengths are also the same as the original branded product.

Keeping the above mentioned in mind, it is clear that consumers need not be concerned with the efficacy of a generic product as it should be an accurate copy of the original medication,

where only the name, colouring, binding agents and packaging differs (Food and Drug Administration, 2008). Yet some people are against the purchase of the equivalent generic product, despite the often significantly lower cost benefit. This complex dynamic, with regards to purchasing behaviour (specifically attitudes people hold towards a specific product such as generic medication) will be explored. Before exploring this study further, the main concepts referred to throughout this thesis need to be defined. The main concepts clarified include attitudes, original medication and generic medication.

1.2 Main Concepts

1.2.1 Attitudes

According to Colman (2001, p. 63) an attitude is:

> An enduring pattern of evaluative responses towards a person, object or issue. According to a frequently quoted classical definition, it is a more or less consistent pattern of affective, cognitive or behavioural responses (or of feeling, thinking and behaviour) towards a psychological object, but the consistency implied by this definition is a supposition that is frequently unmatched by reality and it is possible to have an attitude towards something without ever having the opportunity to express it in behaviour.

According to Eiser and Van der Pligt (1988) there are many definitions of this construct offered. However, there is a slight paradox. On the one hand attitudes are seen as personal or private, and on the other, they are part and parcel of public domain and a universally understood concept. Reasons for the above are given. They claim that attitudes are not vague “moods or sensations” but rather a form of experience that refers to specific objects, events, people or issues (Eiser & Van der Pligt, 1988, p. 1).

Attitudes are also primarily evaluative in nature. In Eiser and Van der Pligt’s (1988, p. 1) opinion, an attitude is not a “good or bad feeling” but a feeling that something is, in actual fact, good or bad. People do not see attitudes as just “a matter of opinion”. They regard attitudes as “the truth” or truth until someone can give new facts to counter the thinking about a subject (Eiser & Van der Pligt, 1988, p. 1).

1.2.2 Medication: original and generic

A generic medicine is identical or bioequivalent to a brand name (original) medicine. The original medication is also sometimes referred to as the innovator product (Food and Drug Administration, 2010). It is identical in the dosage, form, strength, administration, quality, performance characteristics and the intended use of the medicine. Although generic medications are identical to the branded medication, they are sold at a substantially discounted price (Food and Drug Administration, 2008; Ismail, 2008; Powell, 2006).

Generic medicines are manufactured from the branded version only once the patent of the original product has expired. All new medicines are developed under patent protection, just like most other new products. The patent protects the pharmaceutical company that developed the innovator or branded medication and gives license to sell this product exclusively until the patent right expires. When the exclusivity patent expires (normally between 17 to 20 years), pharmaceutical companies can apply to the Food and Drug Administration (FDA) board to gain the rights for the production and selling of a generic bioequivalent form of the branded version (Food and Drug Administration, 2008; McKesson, 2002; Medihelp, 2008).

The FDA (2008) indicates that pharmaceutical companies who apply for a generic right do not need to repeat the costly clinical research which was previously done by the innovator company to show that the ingredients are safe and effective for the use in humans. The generic medication should, however, meet the same stringent criteria of the innovator medicine, as follows:

- The generic version should contain the same active ingredient as the innovator.
- The inactive ingredients, like colouring and binding agents, may vary.
- It should be identical in the strength, dosage and the route of administration.
- It should have the same use indications.
- It should be bioequivalent.
- It should meet the same batch requirements in strength, identity, purity and quality.
- It should be manufactured under the same strict manufacturing standards, under which the innovator or original product is produced (Food and Drug Administration, 2008).

The identical nature of generic and original medication can be seen in the following example:

According to the Harvard Heart Letter (2009), generic heart medication is as good as branded medication. The authors of this letter mention that new analysis, comparing generic heart medication to brand name medication on an equal footing, shows no cause for concern. They also emphasize that generic medications are chemical clones of the brand name versions. By law, generic medication should also be the same as the branded version.

The Harvard Heart Letter (2009) states that the only difference between generic and branded medication is the way it looks and the difference in the inactive ingredients. Also mentioned was a study conducted at the Brigham and Women's Hospital where they identified 38 randomised controlled medication trials. These included angiotensin-converting enzyme (ACE) inhibitors, beta blockers, statins and other cardiovascular drugs. This study found that for 35 out of the 38 studies the brand-name and generic medication worked equally well. In the other three studies, the differences were small and were not related to the medication's action. For example, Cardizem, a brand-name medication, was no more effective than the generic Diltiazem. Even with evidence pointing to brand-name and generic medication working the same, these researchers found a great number of editorials and commentaries on generics, published in medical journals expressing reservations about generic medication use (The Harvard Heart Letter, 2009).

The above mentioned explanation provided some information around generic medication and what it entails. In the following section the aims and objectives of this study is covered.

1.3 The Aim and Objectives of the Study

1.3.1 Aim

The aim of this study was to explore consumers' attitudes towards generic medication and to obtain meaningful insight into how it might affect buying behaviour.

1.3.2 Objectives

The specific objectives of this study were as follows:

- To come to terms, with the help of already documented findings, with the attitudes of the general public, pharmacists, doctors and medical insurance companies around generic medication.

- To devise an instrument that can measure and evaluate consumers' attitudes towards generic medication, and assessed this instrument with the help of factor analysis. Attention was also given to other psychometric properties of this instrument.
- To utilize this instrument to explore attitudes towards generic medication. Special attention was given to gender, age and racial differences, and how these variables influence the choices made.
- To make recommendations that can be used to inform the public, pharmacists, doctors and medical insurance companies based on the findings of this study.

1.4 Theoretical Framework

The theory used to guide this explorative study was based on attitude theory. The Elaboration Likelihood Model developed by Petty and Cacioppo (1986), which focuses on attitude formation and change, was selected as the most appropriate theoretical model. This theory will be discussed fully in a later chapter.

1.5 Methodology

The method used in this study is of a quantitative nature where a survey method was used as main technique to gather information from a sample by using a convenience sampling method. The methodology will be discussed fully in a later chapter.

1.6 Chapter Outline

The following is an outline of the remaining chapters included in this mini-dissertation:

- **Chapter 2. Literature Review**
  In this chapter previous research connected to generic medication and the associated attitudes will be explored to help inform the researcher's study.

- **Chapter 3. Theoretical Approach**
  This chapter will discuss the theory linked to this explorative study, namely Petty and Cacioppo's (1986) Elaboration Likelihood Model.

- **Chapter 4. Methodology**
  In this chapter the methods used in obtaining and analysing the data will be discussed.

- **Chapter 5. Results**

  The results of the descriptive statistics, non-parametric statistics (chi-square tests), factor analysis, regression analysis and multiple analysis of variance (MANOVA) will be provided.

- **Chapter 6. Discussion, Recommendations and Conclusion**

  The results of Chapter 5 will be interpreted and discussed with regards to the literature and theory chapter. Relationships will be explained between the particular variables identified in Chapter 5 and these will be related back to the literature and the particular theory. In this particular chapter limitations and recommendations for future studies will also be discussed.

Within this chapter the researcher provided a broad explanation of the main concepts used in this study, the aims and objectives of the study and outlined the chapter contents of this mini-dissertation. In the following chapter the researcher will review prior research conducted on this topic.

Chapter 2 – Literature Review

2.1 Introduction

In this chapter, a historical overview will be provided for generic medication. There will be a brief discussion on medical insurance companies and their approach to generic medication, followed by a detailed discussion outlining information from international studies regarding the use of generic medication. Within this literature, a distinction will be made between ordinary consumer thoughts and pharmacists' or physicians' thoughts around generic medication.

2.2 An Overview of Generic Medication

2.2.1 Defining generic medication

As briefly discussed in the first chapter, generic medication refers to products that are no longer under patent protection. This allows other companies to produce the same product under a different name (Genazzani & Pattarino, 2008). There is also a distinction between "pure generics" and "branded generics". While "pure generics" contain the same active ingredients, the same binding agents and colouring, "branded generics" are not manufactured by the originator company but refer to products that are reinvented by using the same active ingredient (binding agents and colour may differ) (Genazzani & Pattarino, 2008).

Genazzani and Pattarino (2008) state that, generic drugs are a major asset to national projects though their reduction of pharmaceutical expenses. The medication cost is reduced for the consumer which, in a broader context, creates market competition. They also state that it is difficult to find two medications that are exactly the same in pharmacological properties. It is therefore possible that different medications are used in different clinical settings. However, when medications from the same class have a marginal difference in their pharmacological properties, these properties could also generate market competition. Also, when generic medications, that are direct competition to the original product, have entered different market segments, questions have been raised as to whether they are truly identical to the original product (Genazzani & Pattarino, 2008).

2.2.2 How generic medication originated

According to Meyer (1999), the history of generic drugs is unclear. The Federal Drug Administration (FDA) begun to regulate the pharmaceutical industry in 1906 with the Pure Food and Drug Act. This act required labelling of a product where the ingredients are stated clearly. In those years, if a product harmed anyone, it was the responsibility of the government to remove the respective product from the market (Meyer, 1999). After a tragic incident in 1938 where 140 people, including children, died of a drug containing ethylene glycol, the FDA enacted a new law. The law requires the manufacturer of a product (drug) to test the drug first for safety, after which it needs to be cleared by the FDA before it can be marketed. Drugs introduced to the market after 1938 were seen as “new drugs”. After the patent of this new drug has expired, other companies can make and market the same product under different names. Due to the expiration of the patent of a “new drug”, it is not deemed necessary to prove the safety of the “copy” as it has already been proven safe by the FDA (Meyer, 1999).

In 1962, the 1938 act was amended requiring not only safety but also effectiveness of the drug. According to Lofgren (2002), generic equivalent drugs were manufactured throughout the history of the pharmaceutical industry, but the modern generic companies were only established in the mid-1960s. The most critical period in the generic drug arena was in 1984 when a Drug Price Competition and Patent Restoration Act, also known as the Hatch-Waxman Act, was passed in America. This act made it possible for generic pharmaceuticals to be produced from all post-1962-approved-original-medication, in exchange for an extension of the patent period. This opened the door for competition of generic markets, leading to the beginning of the modern generic pharmaceutical era (Lofgren, 2002).

2.2.3 Medical insurance companies’ approach to generic medication

Lofgren (2002) mentions that the essential factor of any generic drug is the ability to cost less than the branded version. It is for this reason that private and public institutions, and consequently government and private insurance companies, encourage the use of generics. They encourage this behaviour through generic drug substitutions and generic drug prescribing (Lofgren, 2002).

A medical aid, or private medical insurance, works by way of two parties agreeing on shared medical risk (Health Insurance, 2008). A client of a medical aid pays a monthly premium and, in return, the medical aid pays a predetermined sum of money to meet the client’s medical claim. This could be either hospital cover, where only medical procedures are paid

for in medical institutions, or a full medical aid cover, where day-to-day medical expenses are paid out of the medical aid (including expenses for medication at pharmacies) (Health Insurance, 2008).

Discovery Health (2008) and Medihelp (2008) are some of the medical insurance companies in South Africa that encourage their members to choose the generic version over the original branded medication. Discovery Health (2008) mentions that they will pay up to 100% of the generic medication charge, whereas, only up to 75% of the charge is paid if the original medicine is chosen. Because some, if not all, medical insurance companies pay 100% of the generic medication charge, it is probable that most people with medical insurance would make use of generic medication. This is one of the factors that were explored in this explorative study.

2.2.4 International substitution with generic medication

According to Blue Cross Blue Shield of Minnesota (2006), just more than 50% of the prescriptions in America are filled with generic medication. Experts in the field suggest that the generic fill rate (as it is known) could easily be 70% or higher. They also suggest that the current focus on generics comes at an appropriate time, with 25 of the 75 most prescribed medications in America being scheduled to be available in generic form within the next five years (Blue Cross Blue Shield of Minnesota, 2006).

Blue Cross Blue Shield of Minnesota (2006) comments that so many opportunities have gone unrealised because of the way generic “opportunities” have been defined. The generic fill rate, referred to previously, is the percentage of all prescriptions written that are filled with generic medication. Another term used is “generic substitution rate”. This is the percentage of brand-name prescriptions for which generic medications are substituted, either at the patient’s request or as a requirement of the medical insurance of the person. The implication of this is that where a high generic substitution rate may appear impressive when considering the volume of generic medication that is being requested by consumers, the generic substitution is only one part of the opportunity (Blue Cross Blue Shield of Minnesota, 2006).

Blue Cross Blue Shield of Minnesota (2006) points to the fact that doctors can select several medications that are in the same therapeutic class. It is said that, therapeutically equivalent medications may contain different active ingredients but may be grouped in the same class because of similar clinical results. All medications that are grouped into a therapeutic class

are FDA approved. Most of the American states mandate that the medication be substituted for the generic equivalent either where the physician prescribes a generic medication, or where the pharmacist recommends a generic alternative.

Blue Cross Blue Shield of Minnesota (2006) also remarks that one way of increasing the use of generic medication is through the encouragement of people to ask their physician or pharmacist to recommend a generic equivalent product, the same as the original, from the same therapeutic class.

2.2.5 South African policy and generic medication

In the discussion above, the international stance on generic medication and the ideas formed around them can be seen. The focus of the following discussion will be of a South African stance towards generic medication. It must be emphasized, however, that there is a paucity in South African literature where generic medication is concerned. There are a multitude of studies conducted in South Africa regarding generic medication, but there is a limited amount of studies focused on consumers attitudes towards medication in general. However, South African policy does stipulate certain guidelines regarding generic medication.

In connection with medication as a whole, the South African National Drug Policy (1996) indicates the following: the main aim is to promote safe, effective and affordable medication. This aim can be achieved by looking at the medication pricing system in the public and private sectors, as well as the promotion of generic medication. This policy includes the following:

- The availability of essential generic medicine will be encouraged through the use of incentives that favour generic medication and their production.
- This policy also aims at prescribing generic medication in both the public and private sectors. The onus is on the pharmacist to inform the client of the benefits of generic substitution and that substitution only takes place if, and when, the client understands and gives consent.
- Patients have the right to make informed decisions with regards to their own health, including the selection and choice of generic medicines.
- A list containing all medications that cannot be substituted will be provided by the Medicines Control Council (MCC) (South Africa's National Drug Policy, 1996).

According to Verster, Joubert, Stevens and van der Merwe (1998), generic substitutions can play an important role in the control of health care in South Africa. However, the quality and efficacy of the generic substitution should be examined so that the medication is seen as equivalent to the original product. The use of generic medication can be very useful in South Africa, especially with healthcare epidemics such as HIV and AIDS. There are countless people infected with HIV in South Africa (Benatar, 2004; Economist, 2005) that could benefit from the use of cheaper alternatives to very expensive treatment. This is especially the case if these generic medications are developed and produced locally, making them cheaper, affordable and accessible (Benatar, 2004). Taking this into account, it would be worthwhile to pursue the current study in order to see how consumers' view generic medication and what attitudes they hold towards these cheaper alternatives. It would not only be beneficial to find out how consumers' view generic medication in South Africa alone, but this research may also make a valuable contribution towards the current information available in South Africa.

2.3 Attitudes towards generic medication

According to Suh (1999), the worldwide market for generic medication has grown at a faster rate than the pharmaceutical industry as a whole. This is due, in part, to the fact that there is a growing confidence in the quality of generic medication with both practitioners and the public. This can also be explained by efforts made to control the cost of medication by government agencies.

In Suh's (1999) study, it was shown that pharmacists have increased the substitution rate of prescriptions from branded to generic medication. The rate of substitution in America was around 96% in 1997. The increase in substitution is partly because of the influence of third-party players, like medical insurance companies, that provide financial incentives to encourage pharmacists to substitute medication.

According to the Best Practice Journal (2007), when substitution of medication is contemplated, there are a number of issues that need to be taken into account. Firstly, the physician's attitude towards generic medication is the decisive factor in generic medication prescription. The perception of therapeutic efficacy, support for generic medication and previous experiences of generic medication, might influence the physician recommending generic alternatives.

Secondly, pharmacists might consider regulatory issues, medication class, cost and bioequivalence information when recommending generic medication. The patient's medication and medical history, as well as whether the patient is comfortable with the substitution of brands, will be deciding factors (Best Practice Journal, 2007). When considering the consumer's perspective, the main concerns are whether they are satisfied with substitution to generic medication, their satisfaction in the change of possible therapeutic effects, side effects and the practical use of the medication, including shape, colour and taste (Best Practice Journal, 2007).

A distinction will now be drawn between consumers', pharmacists' and physicians' perceptions and attitudes towards generic medication.

2.3.1 The consumer:

Before being able to establish a global picture of consumers' attitudes towards generic medication, it is helpful to first consider whether consumers know what generic medication entails.

2.3.1.1 Understanding and attitudes towards generic medication

It is important to find out how consumers' view generic medication, be it in a positive or negative light. Consumers hold an overall positive attitude with regards to generic medication price but are still apprehensive about the efficacy and side effects of the medication. This will be shown in the following studies.

2.3.1.1.1 General ideas surrounding generic medication

Gossell-Williams and Harriot (2007) focused on patient views of generic medication and found the majority do not fully grasp what it entails. They have either never heard of the term or are unsure what it means. In contrast, most of Himmel et al.'s. (2005) respondents knew what generic medication was and a third indicated negative feelings towards generic medication. These negative feelings towards generic medication was also found in a study by Kjoenniksen, Lindbaek and Granas (2006) where 21% had a negative experience using generic medication resulting in even worse feelings towards generic medication. Two thirds of respondents that use generic medication are satisfied resulting in a third who have had negative experiences (Kjoenniksen et al., 2006). In contrast to the above studies, Granlund and Rudholm (2008) indicate that consumers are equally loyal towards original and branded generic medication.

A point of concern relates to confusion generated in consumers by generic medication. A qualitative study concerned with customers' ideas regarding prescriptions, beliefs about illness and treatment found that generic medication use may cause confusion in consumers (Bajramovic, Emmerton & Tett, 2004; Penn, Watermeyer & Evans, 2011). This is attributed to multiple medication names for the same medication group and consumers who find it hard to remember the specific medication they are taking. To counter this confusion it would be a good practice for pharmacy's to write the generic medication name in brackets next to the original medication on the packaging when filling the prescription (Bajramovic et al., 2004; Joshi et al., 2007).

Tootelian, Gaedeke and Schlacter (1988) indicate that students believe they consume more brand name than generic prescription medication. They also view brand name medication to potentially have less adverse effects and provide the most value for money.

Tootelian et al. (1988) suggest that generic medication manufacturers, that target college students, need to overcome the view that some generic medication offers a lower quality product. Manufacturers also need to confront attitudes around generic medications being less effective, as well as attitudes towards generic medication as providing less value for money than branded versions. Changing consumers' perception may be a long and expensive process and that might affect manufacturers' potential student market.

2.3.1.1.2 Cost saving by using generic medication

Shrank, Cox, Fischer, Mehta and Choudhry's (2009a) study closely parallels the current study. Their research highlights that an overwhelmingly large number of consumers believe generics are less expensive than brand-name medication (Shrank et al., 2009a). The notion of saving-on-medication has also been seen in other studies, where consumers emphasize this issue clearly (Dalen, Furu, Locatelli & Strom, 2011; Heikkila, Mantyselka, Hartikainen-Herranen & Ahonen, 2007; Lundin, 2000; Rizzo & Zeckhauser, 2009). These studies emphasize the need to not only take into account the difference between the cost of generic and original medication, but also the contribution the medical aid is willing to pay. Saving money is the main advantage of generic medication. Consumers indicate that if saving money is of significance to them, then making use of generic medication becomes a viable choice. Kjoenniksen et al.'s (2006) study suggests that when taking into consideration the cost saving of generic medication, about 27% of consumers claim not to accept a generic substitute and 15% claim not to accept generic substitutions if it does not save money. Forty nine percent claim to have their prescription medication substituted for generic medication.

Therefore, saving money is a predictor of consumers' choice to substitute original medication for the generic alternative. Savings is therefore a significant driver where the more one can save the better (Dalen et al., 2011; Heikkila et al., 2007; Lundin, 2000; Nuss, Taylor, De Hert & Hummer, 2004; Rizzo & Zeckhauser, 2009; Rodriguez-Calvillo, Lana, Cueto, Markham & Lopez, 2011).

2.3.1.1.3 Side effects, safety and efficacy

Shrank et al. (2009a) note that only a few respondents believe that generic medication causes more side-effects. Overall, the majority agrees that generic medication is of better value than branded medication. However, when respondents are asked if they would rather prefer to take generic medication, only a small percentage of respondents indicate they would take generic medication. With regard to the use of acute and chronic medication in its generic form, results show that similar proportions of respondents claim preference for generic medication in the treatment of high cholesterol, chronic asymptomatic conditions and back pain. For these conditions respondents perceive generics to be less expensive and a better value without added side effects (Shrank et al., 2009a).

Another part of the research by Shrank et al. (2009a) was concerned with older versus newer medications and their safety and efficacy issues. Respondents agree that branded medication is more effective than generics. Attitudes held by consumers are, therefore, more inclined towards original medication being more effective than generic medication. These consumers, however, also indicate that newer and older medications are equally effective. Consumers display a belief that original medication is safer to use than generic medication. This is similar to the study done by Kjoenniksen et al. (2006) where 18% reported feelings that generic medications have a weaker efficacy compared to the branded medication. This indicates that attitudes mostly orient towards original medication being more effective and safer to use compared with the efficacy and safety of generic medication. It should also be noted that there is a paucity in South African research on issues of safety and efficacy of generic medication.

2.3.1.1.4 Quality of generic medication

Patel, Gauld, Norris and Rades (2009) found interesting results in their study on consumers' perceptions of medication quality. They found that individuals do not value the use of generic or free medication highly. Consumers' consider generic medication to be of poorer quality and treat them with suspicion. In this study, it was found that individuals feel like

"second class citizens" if they have no say in the medication they receive, be it generic or original products. They also mention that generic substitution would be supported if the physician, rather than the pharmacist, recommends it (Patel et al., 2009). This finding is supported by Himmel et al. (2005).

From the above review, it can be concluded that consumers are not always clear on generic medication and what it entails. Many consumers acknowledge that generic medication is cheaper but are wary of its efficacy compared to original medication, and still believe the original medication to be a better purchase. Consumers, who utilize generic medication, are satisfied with the efficacy but still believe them to have more side effects. If an individual is faced with the choice to purchase generic medication, only a small percentage reports its purchase. It is also clear that consumers feel generic medication is of a poorer quality than the quality of the original medication. This feeling the consumer has is a decisive factor in purchasing medication. In the next section, the researcher will focus on different demographic variables, such as race, gender and age, and how they play a role in consumers' decision making to purchase generic medication.

2.3.1.2 Demographic variables and consumers' attitudes

Age, race, gender, as well socio-economic status, have typically been explored in research to evaluate the impact these variables have in terms of consumers' preference for generic or original medication. This will be demonstrated in the following studies:

2.3.1.2.1 Age and gender

Yelkur and Capella (2004) conducted a study to explore elderly consumers' attitudes and awareness towards generic medication. They found that elderly consumer attitudes are strongly in favour of generic medication. An overall greater awareness of generic medication is observed in this population who also have a greater positive attitude towards purchasing generic medication.

Yelkur and Capella (2004) also mention that the increased understanding and awareness of generic medication in the elderly community is encouraged by third party players, such as medical aids, keeping in mind that the elderly community is by far the largest consumer market utilizing the pharmaceutical industry. Figueiras et al. (2009) claim the older consumer shows a stronger belief of similarities between generic and original medication, where the younger consumer does not. In contrast to the above findings, low-income

African American seniors doubted the efficacy of generic medication (Figueiras et al., 2009). In a different study, it was found that patient and doctor characteristics have an impact on the choice between generic and original medication. It is said that the younger the doctor or patient, the more likely it is that generic medication will be chosen (Dalen et al., 2011; Iosifescu, Halm, McGinn, Siu & Federman, 2008).

Other role players, such as the generic pharmaceutical industry, are encouraged by this positive attitude towards generic medications. It can be seen that elderly consumers are more inclined to purchase generic products. A question not addressed by these studies pertains to whether the elderly hold a positive view because of the belief that the product is equivalent, or because of economic implications.

Very few studies explore the influence of gender on attitudes towards generic medication. One study identified focused on gender (Yelkur & Capella, 2004), where a greater awareness of generic medication was found among female consumers. They also reported that women claim generics offer greater value.

2.3.1.2.2 Socio-economic status

Shrank et al. (2009a) indicate that the wealthiest respondents are more likely to prefer taking generic medication. Healthier respondents are more concerned about the efficacy of generic medication, compared to sicker, poorer or older respondents, who are more concerned with its safety. Figueiras et al. (2009) claim that, the higher educated the consumers, the stronger the belief that generic medication is just as effective as the original.

2.3.1.2.3 Race

Similar to the lack of research exploring gender differences among consumers, a review indicates that there is a paucity of research focused on exploring the demographic variable of race, as it relates to consumers' attitudes. Huang et al. (2009) evaluated the ethnic differences in medication concerns in a diabetic population. Interestingly, results showed that Latin and African American individuals are more likely to be concerned about medication side effects and dependency on medication. Ethnic minorities are also more likely to report concern and reluctance to add other medications to their medication regimen. In their conclusion, they state that predominantly more Latin and African American individuals (compared to Caucasians) are concerned about the quality-of-life effects of diabetes-related medication in using the generic versus the original form (Huang et al., 2009).

2.3.1.3 Recommendation and pharmaceutical branding

An important aspect of the use and continued use of generic medication is whether the doctor, or pharmacist, recommends it. Communication between doctors or pharmacists and the consumer is paramount if trying to build confidence in the generic pharmaceutical market. This will be shown in the following studies:

Physicians' communication to their patients, and their medical recommendations, play an important role in purchasing and decision making behaviour, as well as adherence to the use of medication. Poor communication and interpersonal skills have been cited as problem areas in the medical field. It has been suggested that physicians focus on these areas, by improving open conversation with patients in order to avoid being seen as abrupt, dismissive, superior and authoritarian. It has also been found that in-store promotions, price, family/friend recommendations, brand name and advertising play a significant role in consumers' decision making and purchasing of either generic or original medication (Belcher, Fried, Agostini & Tinetti, 2006; Kersnik & Peklar, 2006; Ladha, 2007; Patel, Coffman, Tseng, Clark & Cabana, 2009; Rodriguez-Calvillo et al., 2011; Shrank et al., 2009b; Tarn et al., 2006a; Tarn et al., 2006b).

Shrank et al. (2009a) found that respondent views, with regards to communication with medical providers (physicians and pharmacists), are as follows: respondents communicate infrequently with their medication providers about generic medication, only a third report asking their doctor to substitute generic for brand-name medication and another third ask their pharmacist. Only 19% claim doctor's talk to them about generic medication, while half claim their providers seldom or never talk to them about generic medication. Twenty four percent report that pharmacists talk to them about generic medication but more than 50% claim not to have had this experience. In a related study, 24% report being informed by their physicians about generic medication and 53% report being informed by pharmacy staff. Therefore, physicians, in general, do not convey the use of generic alternative medication to their patients. It is more likely that information regarding generic medication will be found at a pharmacy (Kjoenniksen et al., 2006; Shrank et al., 2009a; Shrank et al., 2009b). From these studies, it appears that communication regarding generic substitution, between consumers and medical practitioners, is not frequent, creating a communication gap between the consumer and the medical practitioner.

Shrank et al. (2009a) suggest, however, that a low level of communication is not as a result of participant discomfort in requesting a generic substitution. More than half of respondents

report feeling comfortable in asking their doctor or pharmacist to substitute their medication for a generic equivalent.

Branding and brand loyalty play a crucial role in attitudes consumers hold towards medication. Ladha (2007) states that branding could result in a competitive edge in the pharmaceutical industry. Branding can help protect the original brand against generics by building a loyal consumer base prior to the patent expiry when generic medications will flood the market and influence the prescription behaviour and attitudes of physicians and pharmacists in favour of the cheaper alternative. Ladha (2007) investigated whether the branding of a pharmaceutical product influences peoples' perceptions of it. She mentions that, "although we are aware of how branding can help pharmaceutical companies, we need to take a look closely at how consumers perceive branded medication and what role generics play in the market in order to fully understand the impact of branding" (Ladha, 2007, p.147).

From the above review, it appears that there are multiple factors that play a role in consumers' attitudes towards generic medication. Existing research has focused on consumer age and, to a lesser extent, consumer race and gender, thereby illustrating the potential significant role that these variables might play in purchasing behaviour and attitudes towards generic medications. In the next section, the importance of attitudes of medical professionals will be explored, as well and how these attitudes can change the attitudes held by the consumer.

2.3.2 The pharmacist and physician:

Although the main focus of this study is on the consumer and what their attitudes are towards generic medication, it is also valuable to review literature related to attitudes belonging to medical professionals, pharmacists and physicians considering their role in recommending certain medication. The attitudes of these medical professionals have a direct impact on what the consumer will purchase. In the following section, important findings will be discussed and research, that has studied this relationship, will be explored.

2.3.2.1 The pharmacist

It is reported that pharmacists play an important role in promoting generic medication substitution (Dalen et al., 2011). In Gossell-Williams and Harriot's (2007) study on pharmacist's views on generics' efficacy, it was identified that the majority of pharmacists

show a lack of confidence in generic medication. Such uncertainty often results in pharmacists delaying filling a prescription, while waiting for more information, before a generic substitution is given (Hellstrom & Rudholm, 2010). Less than half the participants reason that generics have the same efficacy as the original product, a perception based on the client feedback pharmacists receive (Babar et al., 2010). Some pharmacists do not have an accurate understanding of generic medication and are concerned with the quality, safety, and effectiveness of these medications. The economic benefit of using generic medication is, however, acknowledged (Babar et al., 2010)

Another study found that generic substitution, when it occurs, is mainly affected by the type of pharmacy ownership (individually owned pharmacies were more likely to give generic medication compared to other pharmacies such as community pharmacies), the type of medication prescribed, the consumer's age and whether there is a history with a particular medication (Pechlivanoglou, van der Veen, Bos & Postma, 2011). Also, in markets that have newly entering generic medication, brand name loyalty proves to be a challenge if trying to succeed in that particular market (Dalen et al., 2011; Mott & Cline, 2002).

2.3.2.2 The physician

Research focused on physician attitude towards generic medication indicates that, similar to pharmacists, many physicians also question the quality and efficacy of generic medication (Gossell-Williams & Harriot, 2007). In a study by Rodriguez-Calvillo et al. (2011), 45% of physicians report considering generic medications as being therapeutically equivalent to original medication. However, more than 25% doubt equivalence, predominantly based on manufacturer reputation and quality of the medication (Rodriguez-Calvillo et al., 2011). There is therefore a level of uncertainty among doctors as to whether generic medication is equivalent to the original or not. The greatest influence on prescribing behaviour is physicians' personal preference towards certain medications and consequent recommendations based on these personal preferences (Gossell-Williams & Harriot, 2007; Rodriguez-Calvillo et al., 2011).

Kersnik and Peklar (2006) suggest that, general practitioners view generic medication as being equivalent to the innovator or original (branded) product and are willing to prescribe the generic if it is substantially cheaper than the branded version. A total of 62% of general practitioners consider switching to generic medication if it is at least 25% cheaper than the original. The authors indicate that the health-wellness structure is more open to generic pharmaceuticals. It is therefore deducible that, most doctors, in that particular structure, do

not have a problem prescribing generic medication to their patients (Kersnik & Peklar, 2006). In a different study, physicians were found to be conscious about medication cost and their prescribing habits, however, they lack the adequate knowledge about actual medication costs and medical aid coverage of medication. It was suggested that physicians need to educate themselves about the costs involved before prescribing medication (Reichert, Simon, & Halm, 2000). From these findings, it appears that while many doctors do not hold negative attitudes towards generic medication, a lack of knowledge regarding pricing structures and generic alternatives might inhibit the extent to which they prescribe generic medication.

Physicians play a role in consumer attitudes towards generic medication and influence levels of generic medication use, through the extent to which they prescribe generics to their patients. The above review illustrates that, while some physicians hold positive views of generic medication, the rate of prescribed generics is often influenced by their knowledge of generic alternatives. One should note, however, that the above research, around pharmacist and physician views regarding pharmaceuticals (generic or original products), played a role in this explorative research study. The focus was on the consumer, however, and not on medical staff. While physicians and pharmacists play a decisive factor in consumer purchasing behaviour, medical personnel attitudes will not be explored, thereby focusing solely on the consumer and their attitudes.

2.4 Conclusion

In conclusion, it is very interesting to see how consumers view generic medication in prior studies. It is clear that there is limited research on this topic and even less research pertaining to the views and attitudes held by South African consumers. Further, there are a number of factors that make up consumer views of generic medication. These factors include cost implications where consumers wish to save money on medication. It was indicated above that, if there is a significant saving, consumers will choose to take generic medication. Side-effects, safety and efficacy are also factors consumers take into account when thinking about generic medication. Some consumers think that generic medication has more side effects than the original. They also view original medication as being safer to use, and the more effective option, compared to the generic alternative.

The consumers' age, race, gender and socio-economic status are all factors that play a role in consumer attitudes pertaining to generic medication. Consumers are also influenced by their physicians and pharmacists when buying medication. The focus was not on physician

and pharmacist attitudes towards generic medication, but they are considered to play a role in consumers accruing certain attitudes around generic medication. Taking all of these factors into account, the following was explored within this explorative study: the consumer and how they feel about generic medication and the influence of medication cost or possible savings that can be had when generics are chosen. How consumers view generic medication, be it in a positive or negative light, will be explained through a consideration of age, gender, race and socio-economic status. It should be highlighted that there is a paucity of local and international research in this area of interest. This explorative study will yield valuable information for present and possible future studies.

In the following chapter, the Elaboration Likelihood Model (ELM) will be explored and explained. The relevance of this model, in this particular study, will be discussed.

Chapter 3 – Theoretical Approach

3.1 Introduction

The following chapter presents the theoretical framework used to explore the concept of attitudes and the influences involved in forming positive or negative attitudes towards a product. The theoretical framework that informs this study is called the Elaboration Likelihood Model (ELM), as proposed by Petty and Cacioppo (1986). The ELM provides a useful framework for understanding not only attitude formation and change, but also the structure of attitudes. The postulates that underlie the model provide insight into the strength of attitudes held by individuals, as well as the relationship between attitudes and behaviour. Considering that the current study is not focused on attitude change, but rather on describing the existing attitudes of participants, the discussion of the ELM will centre around postulates that are relevant to this research aim.

Before proceeding to an overview of the ELM, the discussion will first clarify the concept of attitudes.

3.2 Defining Attitudes

Before being able to discuss complex theory around attitudes and how they are formed, it is necessary to understand what it meant by attitudes. According to Colman (2001), an attitude refers to the following:

> An enduring pattern of evaluative responses towards a person, object or issue. According to a frequently quoted classical definition, it is more or less a consistent pattern of affective, cognitive and behavioural responses (or of feeling, thinking, and behaving) towards a psychological object, but the consistency implied by this definition is a supposition that is frequently unmatched by reality, and it is possible to have an attitude towards something without ever having the opportunity to express it in behaviour. (p. 63)

Colman (2001, p. 63) provides the following definition regarding attitude change: “The process whereby an attitude towards a person, object, or issue becomes more or less favourable, usually as a consequence of persuasion.”

While attitudes have been defined in many ways, at the heart of all the definitions is evaluation. Attitudes are commonly viewed as summary evaluations of objects, such as oneself, other people, issues, and so forth, which range in a dimension from positive to

negative (Petty, Wegener & Fabrigar, 1997). These authors also mention that much work and research has been done on the basis and structures of attitudes under the area of attitude strength. They also indicate that the differences in underlying structures of attitudes are speculated to create differences in attitude strength (Petty, Wegener & Fabrigar, 1997).

Attitude change refers to the process where an attitude, towards a person or object, becomes more positive or more negative when persuasion is involved. Colman (2001, p. 549) remarks that, persuasion refers to "the process by which attitude change is brought about, usually by the presentation of a message containing arguments in favour or against the person, object or issue to which the attitude applies." There are different theories that explain attitudes and how, through the use of persuasion, attitudes might change or stay the same. Some of these theories include: the ELM, the expectancy-value theory, self-perception theory, theory of planned behaviour, theory of reasoned action, forced compliance, inoculation theory, and the law of social impact, just to name a few (Cialdini, Petty & Cacioppo, 1981; Petty & Cacioppo, 1986).

For the purposes of this study, the ELM will be used to explain the findings of the research. According to Colman (2001) the ELM is:

> A model of persuasion and attitude change according to which recipients of a persuasive message, who are highly motivated and able to process the content of the message with care, tend to elaborate or think about issue-relevant arguments, and if they find the arguments in the message compelling, they may show lasting attitude change, whereas recipients whose motivation and processing ability are low are likely to be influenced by peripheral factors such as attractiveness of the source, and any attitude change achieved by this peripheral route will tend to be short-lived and poorly predictive of behaviour. (p. 236)

According to Petty et al. (1997) the central route (highly motivated analysis of attitude relevant information) and peripheral route (less motivated analysis of attitude relevant information) secure the opposite ends of an elaboration likelihood continuum (explained in depth later on). Even though "central" processes increase in impact as elaboration increases across the continuum, and the "peripheral" processes decrease in impact as elaboration increases, attitude change is often determined by both central and peripheral processes (Cialdini et al., 1981; Cook, Moore & Steel, 2004; Hogg & Vaughan, 2008; Martin, Camarero & San Jose, 2011; Martin, Carlson & Buskist, 2010; Petersen, Heesacker, Schwartz & March, 2000; Petty, Cacioppo & Schumann, 1983; Tesser, 1995).

3.3 The ELM

3.3.1 Introduction

As stated above, the ELM proposes a central and peripheral route of information processing, resulting in attitude change. When do we engage in these two modes? Baron, Branscombe and Byrne (2009) and Petty and Cacioppo (1986) indicate that we, as humans, engage in the most effortful and systematic processing when our motivation and capacity to process information, relating to the persuasive message, is high. This happens when we have a large amount of knowledge and information on a topic, and a large amount of time to put careful thought into the topic. We also engage in this type of processing if we believe that the topic at hand is important to us, and if we believe that it is essential for us to form an accurate view of the topic.

We engage in peripheral route or heuristic processing when we lack the ability, or the capacity, to process the information more carefully, or when our motivation is low. Baron et al. (2009) also mention that advertisers, politicians, salespeople and others that want to change our attitudes, prefer to redirect us into the heuristic mode of processing. It is easier to change attitudes if in this mode of processing, than if trying to process information very systematically.

The researcher agrees with the ELM model. Why is this? Let us consider an example. Imagine a patient who, a moment ago while at the doctor, was diagnosed with a common flu virus. The doctor prescribed some antibiotics and bed rest. Importantly, this person is not feeling well. They are required to stand in a long queue, in a pharmacy, to fill the prescription provided by the doctor. Bearing in mind that this person is not feeling well, would he/she engage in systematic processing when asked whether they would mind taking generic medication? Does he/she have the time or energy to contemplate whether to take the original medication or generic alternative? It is suspected that, when confronted with the question of preference for a generic alternative medication, the person will most likely agree to take it. (It is important to stress that, this example is in connection with a person who has no prior knowledge or experience of a medication). This person would most likely accept the generic product, just for the sake of feeling better. Therefore, this person would make use of the heuristic processing method. This may offer the precise opportunity for the pharmacist to change the person's attitude towards a generic product.

On the following page the ELM is illustrated in a diagram format, which thereafter a detailed description will follow.

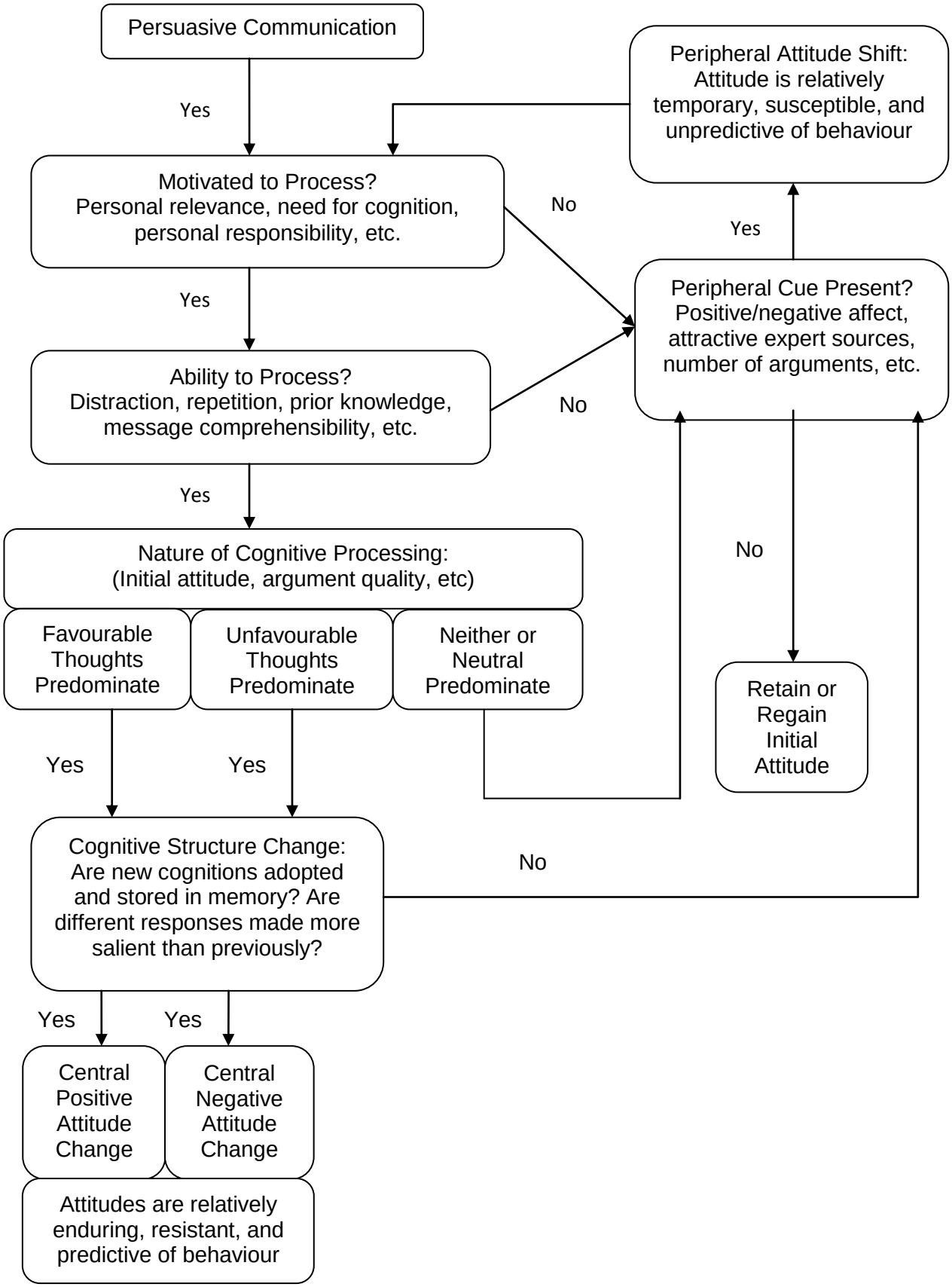

Fig.1. A diagrammatic representation of the ELM, from Petty and Cacioppo, (1986)

3.3.2 A brief description of the ELM as illustrated above

The crux of the ELM is provided in the model above. What follows, is a brief description of this model and then an in depth discussion of the model.

The ELM proposes a number of processes that are involved in attitude formation and change. One has certain attitudes towards certain people, products or services. Let us assume that there is persuasive information coming your way. The first question that needs answering is: do you have the motivation to process this incoming information? In other words, is this incoming information of personal relevance to you, and your situation? If the answer is no, then there might be a peripheral cue present, like an expert source. On the other hand, if it is yes, then the next question is: do you have the ability to process the incoming information? Do you, for example, have prior knowledge of the information or is the information comprehensible enough? If the answer is no, then a peripheral cue, like an expert source, or a number of arguments may sway you to shift your attitude or retain the original. If the answer is yes, then what is the nature of your cognitive process? Do you have favourable, unfavourable or neutral thoughts of the information presented? If neutral thoughts are present, then a peripheral cue may be present resulting in either a shift of your attitude temporarily, or retaining your previous attitude. However, if you have favourable or unfavourable thoughts with respect to the information, then there may be some cognitive structural change that occurs. For example, are there new cognitions adopted and stored? If not, then the peripheral route might be the route through which the attitude is changed temporarily, or maybe the initial attitude is retained. If new cognitions are adopted, then is this information favourable or unfavourable? If it is favourable, then central route processing was used to change the attitude into a positive attitude. If it is unfavourable, then the central route of processing was used resulting in attitude change for the negative. Therefore, if the central route of processing was used to change an attitude, either for the positive or the negative, it will be relatively enduring and will try to resist other persuasions coming its way. If the information followed the peripheral route of processing, then an attitude may change temporarily, or not at all.

Having looked at the main structure of the model the ELM will now be discussed in more detail. According to Petty and Cacioppo (1986) and Bagozzi, Gurhan-Canli and Priester (2007), there are seven postulates of the ELM. These postulates will be outlined and discussed next. Particular emphasis will be placed on aspects of these postulates that relate to the focus of this study, where, the attitude structure of participants will be explored.

3.3.3 Postulate 1

"People are motivated to hold correct attitudes" (Petty & Cacioppo, 1986, p. 127).

The first postulate, proposed by Petty and Cacioppo (1986), is that people are generally motivated to hold correct attitudes. Within their model, incorrect attitudes are generally regarded as maladaptive and can have detrimental behavioural, affective and cognitive consequences (Martin et al., 2011; Maubach, 2010; Petty & Cacioppo, 1986). They mention that, if a person believes that a certain object, person, or issue is "good" when in fact it is "bad", then a number of incorrect behavioural decisions can be made, including certain disappointments later on. An individual is therefore inclined to hold correct attitudes towards a certain person, product or service (Martin et al., 2011; Maubach, 2010; Petty & Cacioppo, 1986). For example, an individual would like to know that he or she holds an accurate or correct attitude toward a certain type of medication, like generic pharmaceuticals, and that this attitude will influence them to act in ways that are to their benefit.

3.3.4 Postulate 2

"Although people want to hold correct attitudes, the amount and nature of issue-relevant elaboration in which they are willing or able to evaluate a message vary with individual and situational factors" (Petty & Cacioppo, 1986, p. 128).

In the second postulate, Petty and Cacioppo (1986) point out that elaboration of a message is the extent to which a person thinks about issue-relevant arguments contained in a message. "Elaboration likelihood" is high when the setting the individual finds him or herself in, motivates the engagement of issue-relevant thinking. Therefore, the setting can facilitate context elaboration when, for example, a consumer is in a pharmacy or physician's office. Another individual factor that plays a role in issue-relevant elaboration is consumer socio-economic status (SES). In this explorative study, SES of consumers was also explored. This factor is a valuable indicator of how consumers attain and hold attitudes towards a product or service. In other words, people will attempt to access relevant information from their memories regarding a particular topic, and try to evaluate the topic based on their memories in order to arrive at a conclusion (Maubach, 2010; Petty & Cacioppo, 1986).

In this postulate, elaboration can be seen as functioning on a continuum basis. Therefore, the individual is motivated to hold accurate attitudes (as described in postulate 1) across this continuum (Bagozzi et al., 2007; Cook, Moore & Steel, 2004; Maubach, 2010; Petty & Cacioppo, 1986). Individual wants to hold accurate attitudes towards certain products,

services or ideas, but the emphasis is on how much effort the individual invests to attain these attitudes. A discussion regarding the elaboration continuum will now follow:

A. The elaboration continuum:

According to Petty and Cacioppo (1986), the extent of elaboration received by a message on a continuum can be observed where, on the one end of the continuum, no thought about the issue-relevant information is seen, and on the other end of the continuum, complete incorporation of the elaboration into the individual's attitude schemas occurs. The motivation an individual has, will determine the likelihood of elaboration and the ability to evaluate the incoming persuasive information.

Petty and Cacioppo (1986) state that many attitude change theories could be placed on a continuum. At the high end are the theoretical paradigms like inoculation theory, cognitive response theory, information integration theory and the theory of reasoned action. All of these assume people attempt to carefully evaluate information presented in a message for integration to follow. On the other end of the continuum, theories are placed that focus more on how simple affective processes influence attitudes or how individuals employ various rules or heuristics to judge their own attitudes. These theories include classical conditioning and mere exposure. Attitudes may still be changed by using these theories if the attitude object is associated with a strong positive or negative affective cue or if a weaker cue is paired with an attitude object (Cook et al., 2004; Maubach, 2010; Petty & Cacioppo, 1986).

Petty and Cacioppo (1986) also mention that even if no strong affective cues are presented, it would still be possible for individuals to form acceptable attitudes without relying on the enquiry of issue-relevant arguments. For example, an individual may come to like or dislike a product, object or service as a result of their own behaviour: "I bought this generic sinus medication at the pharmacy, I keep on using it, therefore it works for me, and I will continue to buy it."

If relying on more complex reasoning processes, they need careful inspection of issue-relevant information presented as part of the message. Petty and Cacioppo (1986) propose that, when either motivation or ability to process issue-relevant information is low, attitudes may be changed by associating the issue with various cues, called peripheral cues. People may also attempt to form opinions, by making an assumption about the likely truth of a particular attitude. These assumptions are then based on some cues, like for example message inconsistency, the individual's own behaviour and the characteristics of the source.

As seen in Chapter 2, authoritative sources (pharmacists' and physicians' attitudes and recommendations) have been found to be influential in changing consumer attitudes towards generic medication. This was the case because they use their own attitudes, be it that their attitudes are for or against generic medication, to bring about change. Further, the source of the message, in this instance the physician or pharmacist, is very important when consumers make informed decisions about their health.

3.3.5 Postulate 3

"Variables can affect the amount and direction of attitude change by (a) serving as persuasive arguments, (b) serving as peripheral cues, and/or (c) affecting the extent or direction of issue and argument elaboration" (Petty & Cacioppo, 1986, p. 132).

Within this postulate the following will be discussed: argument quality, argument direction, trustworthiness and how these factors might influence or be persuasive in encouraging a consumer to buy a product or service.

A. Arguments or message quality and peripheral cues

"What makes an argument persuasive"? This, according to Petty and Cacioppo (1986), is one of the least researched and understood questions in the psychology of persuasion. One way to influence attitudes, according to the ELM, is by varying the quality of the arguments in a persuasive message. A second way may be the introduction of a simple cue in the persuasion context, affecting attitudes in the absence of argument processing. As noted earlier, some cues have this effect because they activate relatively primitive states that become associated with the attitude object. Since cues are postulated to affect attitude change without affecting argument processing, it is possible to test manipulations as potential cues by presenting them to subjects with only the advocated position. If the manipulation is a potential cue, it should have the ability to affect attitudes in the absence of the argument (Bagozzi et al., 2007; Maubach, 2010; Petty & Cacioppo, 1986).

B. Affecting elaboration

A third way, in which a variable can affect persuasion, is through determining the direction of message processing. Variables can affect argument processing in a relatively objective or relatively biased manner (Petty & Cacioppo, 1986).

A distinction will now be drawn between relatively objective processing and relatively biased processing.

Objective processing: Some treatment variable motivates, enables or inhibits subjects to view the strengths of rational arguments and the flaws in inaccurate ones. Objective processing has much in common with "bottom up" processing since the elaboration is relatively important and data driven (Petty & Cacioppo, 1986). An example of relatively objective processing, seen within a pharmaceutical scenario, would be where a physician or pharmacist explains the benefits to the patient, the patient in turn weighs up all of these benefits and makes a decision based on these data or information driven arguments.

Biased processing: Some treatment variable motivates, enables or inhibits subjects to generate a particular kind of thought in response to a message. Biased processing has more in common with "top down" processing. The elaboration may, as an example, be governed by an attitude schema acting as a guide for processing to uphold or even reinforce the schema (Bagozzi et al., 2007; Petty & Cacioppo, 1986). An example of relatively biased processing, seen within a pharmaceutical scenario, would be where a consumer bought generic medication at a pharmacy, used it and it did not work. When this consumer is in a pharmacy again and is asked if a generic alternative can be provided, he or she will say no due to the fact that their previous experience with generic medication was a waste of money and not effective. Therefore, the consumer already has a negative idea of generic medication based on their prior experience with the product.

One of the unique and most powerful features of the ELM is the suggestion that a variable can influence persuasion through different positions. The ELM theorizes that when the elaboration likelihood is low, a variable can influence persuasion by non-thoughtful processes. When overall elaboration likelihood is moderate, a variable can influence persuasion by influencing the degree of the elaboration. When the overall elaboration likelihood is high, a variable can influence persuasion by influencing the directions of issue-relevant thoughts, or a variable can influence persuasion by serving as an argument (Petty & Cacioppo, 1986). The following are examples of the above multiple roles:

- *Low elaboration likelihood:* An individual may just decide to agree with a statement without thoughtfully considering the issue-relevant merits of the attitude. For example, the individual might agree with a statement regarding the ineffectiveness of

generic medication when a group of friends are together. This individual may agree with a statement and without thinking it through.

- *Moderate elaboration likelihood*: When you find that your friend holds a different attitude than you, you will thoughtfully consider your attitude and its basis. For example, an individual holds a different attitude towards generic medication than that of his or her friend. The individual will consider their attitude, that which differs from their friend, and try to determine why it differs.
- *High elaboration likelihood:* You may be motivated to hold the same attitude as your friend and thus elaborate attitude-relevant information in a way that will create such an agreement. For example, when high elaboration likelihood occurs, the individual is motivated to hold the same attitude as his or her friend (e.g. a positive attitude towards generic medication). This individual will then elaborate attitude-relevant information, specifically positive information around generic medication, which creates an agreement with his or her friend's attitude (Bagozzi et al., 2007).

C. Trustworthiness

Trustworthiness is an important factor to consider when it comes to persuasion. Bagozzi et al. (2007) indicate that, if an individual receives a message, and is confident that this particular message is from a knowledgeable source that provides accurate information (high trustworthiness), the individual may avoid investigating the message and accept the message as valid. The opposite is also true. If an individual is of the opinion that the source is questionable and does not provide accurate information (low trustworthiness), the individual may feel the need to analyse the message to establish if the statements are valid. The trustworthiness of the message conveyer is important and will influence the individual's assurance that the message is accurate. This assurance of accuracy is hypothesized to lead to differences in thoughtful elaboration of persuasive messages (Bagozzi et al., 2007; Maubach, 2010). As indicated, trustworthiness is an important factor. The consumer would like to obtain information from a credible and knowledgeable source, like the physician or pharmacist. Sometimes, however, the consumer also trusts friends or family and feels that they too are credible sources of information. This may be because they have used a certain type of medication and has found it works wonders for them. It might work the other way around as well. If the consumer feels that the source of the information is not trustworthy or credible, then he or she might not even think of purchasing the product.

Priester and Petty (2003) state that, recent research indicates that, on the one hand, information that is presented by untrustworthy endorsers is likely to be thoughtfully

elaborated, whereas, on the other hand, information that is presented by trustworthy endorsers is likely to be thoughtlessly accepted. They conducted two studies to establish spokesperson trustworthiness. In the first study they manipulated argument quality and assessed cognitive responses to show that influence of trustworthiness on persuasion holds for known endorsers that are likely to be used in genuine advertisements (Priester & Petty, 2003). In the second study, they demonstrated that trustworthiness can be influenced by individuals endorsing too many products with similar persuasion consequences (Priester & Petty, 2003). In study two they found that attitudes resulting from an untrustworthy endorser come to mind faster, even if the attitudes were positive, proving that elaboration can influence the accessibility of attitudes. Their research provides evidence that attitude extremity may not be a sufficient indicator of advertisement effectiveness. Equally extreme attitudes may vary as to the bases from which they were formed. Their research also provides theoretical and strategic insight into the use of trustworthy and untrustworthy endorsers (Priester & Petty, 2003).

3.3.6 Postulate 4

"Variables affecting motivation and/or ability to process a message in a relatively objective manner can do so by either enhancing or reducing argument scrutiny" (Petty & Cacioppo, 1986, p. 137).

As hinted above by the fourth postulate, Petty and Cacioppo's (1986) method of defining argument quality allows for assessing the extent to which a variable affects argument processing and the extent to which this processing is relatively objective or biased.

By manipulating argument quality with a combined variable, it is likely to tell whether the variable increases or decreases argument processing in a relatively objective manner. If it happens that the variable heightens argument processing, the individual's thoughts and attitudes should be more polarized when the variable is present. If the variable, however, reduces argument processing, the individuals' thoughts and attitudes should be less polarized when the variable is present and not absent (Bagozzi et al., 2007; Maubach, 2010; Petty & Cacioppo, 1986).

Petty and Cacioppo (1986) reviewed some evidence that variables can affect persuasion by affecting the extent of argument processing in a relatively objective manner. What follows below is some of the evidence Petty and Cacioppo (1986) provide.

A. Distraction

Petty and Cacioppo (1986) conducted an experiment with the aim of testing a more general distraction formulation. They specifically reasoned that if the predominant thoughts, to a message without distraction, were unfavourable, then distraction should disrupt these unfavourable thoughts and lead to increased agreement. Alternatively, if the predominant thoughts to a message without distraction were favourable, then distraction should disrupt the favourable thoughts that will result in the decrease of agreement. Petty and Cacioppo (1986) mention that, thought disruption interpretation holds that distraction should enhance persuasion for messages containing weak arguments, and that distraction should reduce persuasion for messages containing strong arguments.

With regards to distraction, Petty and Cacioppo (1986) state the following: distraction is a variable that affects a person's ability to process a message in a relatively objective manner. Particularly, distraction disrupts the thoughts that would normally be prompted by a message. Distraction is thus very important as a thought disrupter when individuals are highly motivated and able to process the message. It is also said that if motivation, or the ability to process the message, is low, then distraction should have little effect (Petty & Cacioppo, 1986).

B. Repetition

Petty and Cacioppo (1986) mention that, the most common finding in persuasion literature is that repetition of a persuasive message tends first to increase agreement and then decrease it. Based on a collection of research, the authors proposed that message repetition guides a series of psychological reactions to a persuasive message (Campbell & Keller, 2003; Sharma, 2010). Petty and Cacioppo (1986) theorized a two-stage attitude modification process. In the first stage, repeating messages provide the individual with a greater opportunity to consider the implications of the content of the message in an objective manner. Just as distraction can disturb information processing, repetition can improve an individual's ability to process the information in a message. The benefit of repetition becomes evident when additional instances are needed to process the message. For example, additional instances will be needed to process message if there were only one low exposure or when motivation to process this information with one exposure, is low. When an individual has considered the implications of the message, then the second stage can begin. In the second stage, the relatively objective processing of the first stage ends as dullness (tedium) and or reactance, produced by excessive exposures. Baron et al. (2009) state that "reactance often increases resistance to persuasion and can even produce negative attitude

change or opposite to what was intended" (p. 465). Both tedium and reactance tends to result in decreased message approval, either by acting as simple negative affective cues or by biasing the nature of information processing in a negative direction (Petty & Cacioppo, 1986).

C. Personal relevance/involvement

According to Petty and Cacioppo (1986), Bagozzi et al. (2007) and Maubach (2010), motivational variables are also important in affecting the likelihood of message elaboration. The most important variable being that the incoming message has importance to you, personal relevance. The ELM proposes that as personal relevance increases, individuals become more motivated to process the issue-relevant messages. As personal consequences of advocacy increases, it becomes more important for people to form accurate opinions as the consequences of being incorrect are greater. Because of greater personal association, it is important that individuals are more motivated to engage in cognitive work, to evaluate the true merits of the messages and to achieve more accurate opinions.

Therefore, when a message contains information that is inconsistent with the individual's initial opinions, high relevance individuals should be more motivated and generally more able to generate counter-arguments to the messages presented. If, however, there are messages that contain information that is consistent with the individual's initial attitudes, high relevance individuals should be more motivated, and generally more able, to elaborate the strengths of the arguments (Bagozzi et al., 2007; Maubach, 2010; Petty & Cacioppo, 1986). To illustrate this in a pharmaceutical scenario, a consumer would most likely process the incoming information more effectively when, a consumer who used generic medication before, found it worked and the physician mentions the benefits of generic medication. This person might listen carefully to the incoming information because the information is of relevance to him or her.

D. Personal responsibility

Petty and Cacioppo (1986) explain that as personal relevance enhances the motivation to process issue-relevant information, so too will personal responsibility produce related effects. A couple of experiments were conducted by Petty and Cacioppo (1986). They found that the greater the personal responsibility for evaluating an issue, the more people should be willing to apply the cognitive effort necessary to evaluate the relevant arguments or

messages presented. This can be translated into a pharmaceutical context when the individual takes personal responsibility for their health and listens to the information conveyed by the doctor and pharmacist. If information is directed at them individually, and they feel responsibility to take care of themselves, then they will be able to evaluate the information more effectively.

3.3.7 Postulate 5

"Variables affecting message processing in a relatively biased manner can produce either a positive (favourable) or negative (unfavourable) motivational and/or ability bias to the issue-relevant thoughts attempted" (Petty & Cacioppo, 1986, p. 152).

Throughout the previous section it became more evident that argument quality is an important factor of persuasion when motivation and the ability to process information are high. What happens when the motivation and ability to process the information are low? This postulate attends to this problem. This particular postulate from Petty and Cacioppo (1986) focuses exclusively on attitude change, which, as previously stated, is not the focus of this study. Therefore, it was not in the interest of the study to include this section, so as not to detract from the main focus of this research project.

3.3.8 Postulate 6

"As motivation and/or ability to process arguments are decreased, peripheral cues become relatively more important determinants of persuasion. Conversely, as argument scrutiny is increased, peripheral cues become relatively less important determinants of persuasion" (Petty & Cacioppo, 1986, p. 162).

A. Prior knowledge

One of the most important variables that can have an influence on information processing is the extent to which an individual has adequate knowledge of the issue at hand. Petty and Cacioppo (1986) state that, the more issue-relevant information individuals have, the more they are inclined to counter argue opposing messages. Before a consumer can hold a positive or negative attitude towards a product, such as generic medication, they first need adequate prior knowledge. This prior knowledge can also guide the consumer to either buy a certain product or not. In conducting this explorative research study, respondents were asked if they had prior knowledge. Specifically, did they know what generic medication was before completing the questionnaire.

B. Message processing effects

If a message is not consistent with an individual's initial opinion, it would be expected that previous knowledge would enhance the person's ability to counter argue the message (Petty & Cacioppo, 1986).

C. Cue effects

Petty and Cacioppo (1986) have shown that the view of simple cues, or decision rules, are more likely to affect susceptibility when previous knowledge is low, rather than high. Gender is a cue that has been studied in the context of previous issue-relevant knowledge. According to the ELM, attitude expression, based on the female gender role, should be more likely when women have little ability to process the issue-relevant information presented, than when ability is high. The ELM also suggests that, to the extent that gender roles provide simple rules as to how one should behave, these rules would work when the ability level to evaluate and process the stimuli are low. It is also noted that, simple affective cues may be more important determinants of attitudes when prior knowledge is low rather than high (Petty & Cacioppo, 1986).

D. Testing prior knowledge effects

Prior research has provided support for the ELM's view that when prior knowledge is low, simple cues in the persuasion context affect attitudes. When prior knowledge is high, however, message processing is biased as a result of previous knowledge, enabling counter arguing of different messages and the strengthening of similar messages. Therefore, low knowledge subjects' attitudes were affected by the simple cue of message length, where high knowledge subjects used their prior knowledge to attempt to defend their attitudes. They were more successful in doing this when the arguments in the message were weak (Petty & Cacioppo, 1986).

3.3.9 Postulate 7

"Attitude changes that result mostly from processing issue-relevant arguments (central route) will show greater temporal persistence, greater prediction of behaviour, and greater resistance to counter-persuasion than attitude changes that result mostly from peripheral cues" (Petty & Cacioppo, 1986, p. 175).

A. Variables' influence on persuasion

Bagozzi et al. (2007) remark that the strength of the ELM resides with its statement that the same variable can have an influence on persuasion through different roles, depending on the overall elaboration likelihood.

Although a source characteristic under low elaboration likelihood may serve as peripheral cues in certain conditions, in other conditions, of high elaboration likelihood, these source characteristics may serve as an argument or bias of thoughts. The same source characteristic may emphasize elaboration under conditions of moderate elaboration likelihood (Bagozzi et al., 2007).

B. Persistence

Persistence can best be explained by using an example. Imagine you are watching television and an advertisement comes on for a specific pharmaceutical product. The advertisement that is shown on the television wants to change your attitude towards a certain product. For argument's sake, let us assume that the particular advertisement did change your attitude towards a certain brand of medication. How long can this newly formed attitude remain unchanged? According to Bagozzi et al. (2007), most attitude literature finds that attitude change decays over time.

The ELM suggests that, although attitudes are most likely to diminish over time, this decaying time is influenced by the process by which the attitude was formed or changed in the first place. It is said that attitudes, that were formed or changed as the result of thoughtful elaboration, decay slower than attitudes that were formed or changed as a result of non-thoughtful elaboration (Bagozzi et al., 2007).

Bagozzi et al. (2007) mention that, a "sleeper effect" can also occur. This effect takes place when attitudes become more favourable towards a certain product or service over time. A persuasive message has been elaborated but, following this elaboration there was a flaw or inaccuracy in the message. The attitude had all the properties associated with a strong attitude but this discounting cue, or flaw, satisfies the changed attitude. Over time this effect diminishes and the underlying changed attitude comes to the fore (Bagozzi et al., 2007).

C. Resistance

Resistance can also be explained by using an example. Let us use the television advertisement example again. While watching television an advertisement comes on regarding a specific generic medication for sinusitis. You watch and evaluate the commercial and experience a favourable attitude towards this product. Later on there is another advertisement on television, advertising a different generic medication for sinusitis. How likely will it be for the first attitude, which was formed in favour of the first generic medication, to change as a result of the second advertisement? This refers to how resistant your attitude is to attempts made to change it.

According to the ELM, attitudes changed as a result of thoughtful elaboration are more likely to resist counter persuasive attempts, than attitudes that are the result of less thoughtful elaboration. Bagozzi et al. (2007) states that, the properties associated with attitudes that are a result of elaboration, allow individuals to use their own knowledge to produce counter arguments against the counter persuasive efforts (Haugtvedt & Wegener, 1994). Therefore, attitudes towards the first generic sinusitis medication will most likely resist the second counter persuasive advertisement for generic sinusitis medication.

To apply the above explanation to the current explorative study, if a consumer were to take the time to think through the information presented to him or her, it is said that these attitudes would most likely be enduring and resistant to change, by use of the central route of processing.

In the next section, the ELM will be discussed, with the assistance of a pharmaceutical scenario used to explain the attitudes and their formation, and how persuasion might influence an individual that is not sure which type of medication to purchase when faced with this choice in a pharmacy or at the physician.

3.3.10 Placing the ELM in a pharmaceutical context

What follows is example of how the ELM may be seen from a pharmaceutical perspective. The central route of processing will first be explained followed by the peripheral route of processing.

3.3.10.1 The central route of processing

It should be borne in mind that the central route of processing is the mode of attitude formation that is more enduring and resistant to change (Petty & Cacioppo, 1986). Let us assume that a person walks into a pharmacy, is not pressed for time and stands in the queue to be helped. When this person reaches the front of the queue, he/she requests the prescription to be filled. The pharmacist asks whether the generic form of the medication can be provided and explains that the generic alternative has the same active ingredient and works just as effectively as the original product. The only differences being that the tablet is a different colour, has a different shape and is substantially cheaper than the original product.

Taking all of this information into consideration, the consumer's choice may move in either one of two directions:

- If the consumer is motivated and able to process the incoming information, has prior knowledge and personal relevance to the product, then he or she may have favourable thoughts towards the product. If this is the case, then the consumer may have relevant prior experience, of a positive nature (central positive attitude change), with regards to generic medication, suggesting prior use of the generic medication with effective results. The chances are higher that the consumer purchasing the product will end up buying the generic alternative.
- If, however, the consumer is motivated and able to process the incoming information, but has unfavourable thoughts towards the product (central negative attitude change), then the consumer may decline the offer for the generic medication. This suggests that the consumer had a prior bad experience with the product or heard a family member or friend mention that generic products are not as effective as the original medication.

3.3.10.2 The peripheral route of processing

Let us assume that the same scenario is applied to the peripheral route of processing. The following might occur, if the consumer is either pressed for time or the ability to process the information is not adequate. The consumer may also have either neutral or no predominant thoughts about the product or not adopted new ideas about the product. When these factors come into consideration, the consumer's attitude may still change through the peripheral route of processing.

Let us assume that the consumer is not motivated or able to process the persuasive information. They have no prior experience or knowledge about the product, but when hearing information from an attractive source, the consumer's attitude may be changed. What may also occur is, when the consumer is motivated and able to process the information, but still holds neutral thoughts towards the product, or no new information was adopted regarding generic medication, then the source of information may sway the consumer to purchase the generic medication.

It should be kept in mind that if an individual's attitudes are changed through the peripheral route of processing, the change may be only temporary and may not hold lasting effects. It may, therefore, not resist change and be easily changed.

3.3.11 Conclusion

Within this chapter, it became clear that people attain, hold and change attitudes. Colman (2001) gave an indication that attitudes are enduring patterns of evaluative responses towards a person, issue or product. Petty and Cacioppo (1986) developed the ELM model as a useful framework for understanding attitude formation and attitude change, as well as the structure of attitudes. This particular model has seven postulates that explain attitude change, formation and attitude structure. By using the ELM as a theoretical point of departure, the following three main points were found to be valuable regarding this explorative study:

Firstly, the ELM states that message source is important. For this reason it was decided to focus on the influence of, what can be considered, "credible sources", such as pharmacists' and physicians' recommendations of generic medication use. It seems that consumers' attitudes are, to some extent, influenced by these credible sources and what they think about generic medication.

Secondly, the ELM states that individual factors influence the extent to which elaboration is likely to occur. This is why individual variables such as race, gender, age and socio-economic status were assessed in the current study in order to describe how these variables relate to consumer attitudes towards generic medication. The ELM suggests that these individual variables contribute significantly towards generic medication attitudes.

Thirdly, the ELM proposes that trustworthiness of the message source is an important consideration in attitude formation. For this reason, the impact of sources, such as friends and family, on participants' attitudes was assessed.

In the follow chapter, the quantitative methodology used for this study will be described. Attention will also be given to the validity and reliability of the measurement instrument devised and used for this explorative study.

Chapter 4 – Methodology

4.1 Introduction

In this chapter the researcher will discuss the methodology used in this study, namely quantitative research methodology. After this brief introduction, survey research, the method used to conduct the research will be discussed. The researcher will go on to discuss how the sample was obtained followed by some ethical points. Lastly, the researcher will provide further insight into the types of analysis used and provide some discussion on the validity and reliability of the statistics employed.

4.2 Quantitative Research Methodology

This explorative study is of a quantitative nature whereby a questionnaire was used to gather information on people's attitudes towards medication, specifically generic medication. Whitley (2002) mentions quantitative data consist of numerical information which includes scores of a test and the frequency with which behaviour occurs. Quantitative analysis is typically used for description and explanation of the specific phenomena reflected by the observation (Babbie, 2005). It should also be mentioned that the university's ethics committee approved this study.

Why did the researcher decide to conduct this explorative study by quantitative means? According to Tredoux and Durrheim (2002), there are advantages to using quantitative methods. These advantages include efficiency, approximation or modelling and a powerful language.

Efficiency can be described as the use of numbers to communicate relevant information (Tredoux & Durrheim, 2002). For example, South Africa carries out a census every ten years and numerical information is valuable in this regard. A qualitative approach would have struggled enormously to cope with a national census. In the same way, it would be a very efficient task to conduct a quantitative study to explore the attitudes of people towards medication, specifically generic medication.

It is said that approximation or modelling, as a quantitative technique, is best-suited to representing phenomena in the world. In this sense, it offers a great opportunity to study complex phenomena (Tredoux & Durrheim, 2002). An example of approximation/modelling would be the studying of the dimensions humans use to make similarity judgements of

faces. If a qualitative approach is used, by asking people how they make similarity judgements, there would be a multitude of responses. By using a quantitative technique, called multidimensional scaling (which provides a spatial model), a representation of each dimension of similarity, as an axis, and each face, as a point between the axes, is provided. This type of modelling allows for inferences of similarity in the judgements of faces. To sort through lists of verbal descriptions would take a long time and it is doubtful that arrival at the dimensions would be as clear as that which would be achieved through quantitative techniques. Thus, complex phenomena can be explored with the use of quantitative methodology (Tredoux & Durrheim, 2002).

A final advantage of quantitative methods lies with its ability to act as a powerful language due to its already established theory and practice. Mathematicians, statisticians and social scientists have spent hundreds of years developing a powerful quantitative language. By using this language, significant conclusions can be drawn and investigated (Tredoux & Durrheim, 2002).

4.3 Survey Research

In the present study the researcher made use of a survey research design. According to Whitley (2002), survey research is the process whereby data are collected by asking questions and responses are recorded in a questionnaire format. A survey entails asking questions, from a particular sample of the population, at a specific point in time. Questionnaires are often mailed to respondents, asked by an interviewer in the respondent's home, asked over a telephone conversation or handed out for the respondent to answer and then returned to the researcher. The current study made use of this last mode of completion. Surveys are usually conducted on samples of respondents because it is generally not feasible to give questionnaires to all people in a particular population (Bailey, 1982).

Bailey (1982) also mentions that, in addition to surveys being conducted at a single point in time, there are other characteristics of the survey method that differentiates from other methods, such as observation. These characteristics include a fixed number of questions per questionnaire and responses being systematically classified.

The researcher formulated the questions for the questionnaire in two ways. Firstly, he used the knowledge gained while working in a pharmacy as a pharmacist's assistant, helping consumers with their medication needs. There it was learnt what the differences were

between generic and original medication and how consumers viewed these medications. Economic factors played a huge role in consumers' purchasing behaviour. Secondly, while conducting the literature review, the researcher soon realised that there were other factors at play, namely, age, race, gender and economic factors, as well as attitudes of medical professionals towards medication. Therefore, these two approaches, personal accounts and prior research, helped inform the construction of the questionnaire.

The questionnaire developed for the current study consists of four sections (see Appendix A). The first section consisted of a biographical section asking general population demographic questions, such as sex, age and race. The second section of the questionnaire was a general question section. The focus of this section was on respondents' knowledge of medication. "Yes", "no" and "not sure" questions were posed. For example, respondents had to answer questions such as, "Do you know what generic medication is". The third section was the most involved section of the questionnaire. Numerous questions asked consumers about their attitudes towards medication, specifically generic medication. Participants needed to answer questions using a five point Likert Scale (ranging from "strongly agree" to "strongly disagree") to make their attitude known. In the last section, the participants needed to answer questions relating to the living standards measure (LSM) (explained fully later in this chapter). According to Whitley (2002), Likert Scales are named after their developer, Rensis Likert. They are also known as summated rating scales. Such a scale presents, to the respondent, a set of statements about a person, service, concept or product where the respondent rates their level of agreement on a numerical scale (Whitley, 2002).

To counter response bias, half the statements should be worded positively and the other half should be worded negatively (Whitley, 2002). The researcher minimised response bias by wording some of the questions negatively. The negatively worded statements are reverse coded, meaning that the values given to the negatively worded statements are higher than the positively worded statements. For example, on a four point Likert Scale, where one is the lowest value and four the highest, a one becomes a four and a four becomes a one (Whitley, 2002). Whitley (2002) advises that respondents' scores are the sum of their item responses. Following his suggestion, the researcher calculated the respondents' scores for the Likert Scale based on the sum of their item responses.

Likert Scales are very popular. The reason for its popularity lies with its desirable features (Whitley, 2002). It is easy to construct questionnaires compared to other scaling

approaches. Likert Scales also have high reliability and are highly flexible. It is mentioned that they can be used to scale individuals on their attitudes, personality characteristics and perceptions of people or things. Therefore, the researcher used Likert Scales to assess consumers' attitudes towards medication, specifically generic medication. This scaling method was only used in the third section of the questionnaire, specifically pertaining to respondents' attitudes, which was the most elaborative section.

4.4 Sampling Method

The researcher utilised a non-probability sampling technique called convenience sampling, in other words, reliance on available subjects (Babbie, 2005). Non-probability sampling is where any procedure is used selecting respondents out of a population to be included in the sample population; the probability of any particular individual of a population being chosen is unknown (Dane, 1990; Struwig & Stead, 2001). Convenience sampling results in any case being selected for inclusion in the sample (Babbie, 2005; Bailey, 1982; Dane, 1990; Strydom, Fouche & Delport, 2002). The sample is not representative of the population under investigation, which would include individuals from all walks of life. Therefore, generalisation of results should be made with caution (Babbie, 2005; Bailey, 1982; Dane, 1990). Bailey (1982) mentions that there are advantages in using this sampling method, namely, it is much less complicated, less expensive and may even be done at the spur-of-the-moment to take advantage of available respondents. Representative sampling can be costly and time consuming, whereas, with a convenience sample, necessary participants are found to satisfy the sample and then the study can commence. By using a convenience sample, it would be adequate to develop a measurement instrument and determine its feasibility on a much larger scale and at a later stage in the research project. Thus, by using a convenience sample the researcher will save money and make the research project more cost effective based on its explorative nature (Bailey, 1982).

As mentioned above, the researcher planned to perfect the questionnaire and then at a later stage administer the questionnaire again. In this particular study, which is of an explorative nature, the researcher would like to determine if this research would be feasible to conduct again at a later stage. Generalising to the broader public domain was not the main aim of this study.

4.5. Sample Description

4.5.1 Sample obtained

While conducting the study, the researcher obtained a sample of 266 participants for this exploratory study. How was this sample obtained? The researcher made use of convenience sampling as explained above.

4.5.2 Data collection

The researcher first conducted a pilot study with 5 students in the psychology department from various year groups. These individuals were timed and 20 minutes was found to be sufficient time for the questionnaire to be completed. From issues raised by the pilot group study (for example, faults, mistakes or misleading questions) the questionnaire was refined and the researcher went on to actual data collection.

Actual data collection proceeded in two stages. In the first stage, data were collected from a student sample comprising undergraduate and postgraduate psychology students. In the second stage, a public sample of participants was added to supplement the student sample. This was done in order to increase the sample size and to include participants from a wider background and from an older age range. This resulted in a more diverse sample, especially in relation to the age range of respondents. For questionnaire administration the student sample completed the questionnaire through group administration and the public sample completed their questionnaires individually.

4.5.3 Descriptive statistics

Of the 266 participants there were 47 males and 219 females. Participant age ranged from 19 to 79 years, with a mean age of 29.67 years. Regarding the racial grouping of the participants 248 of the participants identified themselves as white and 18 as black[1]. Participants consisted of mainly middle to upper-class participants. More insight into the descriptive statistics of this sample and its significance will be explained in the following chapter.

[1]The initial racial categories were, 248 White, 14 Black, 3 Coloured and 1 Indian. Because of the fewer number of participants from a wider ethnic background the researcher felt that it would be better to combine the four ethnic groups into two main categories (this is also to ease statistical analysis). Therefore, the categories include White and Black (the respondents making up the Black group include Black, Coloured and Indian respondents) totalling 18 Black and 248 White respondents.

4.6 Ethical Considerations

4.6.1 Informed consent

With regards to consent, participants gave their permission to be part of the study via an informed consent form. In the consent form, the study was outlined and explained in full. This document also informed participants of their rights as stipulated in accordance with the Health Professions Council South Africa (HPCSA) Ethical Rules (2006). As a secondary measure, the researcher explained to participants, when distributing the questionnaires, the aim of the study and what they were consenting to when they signed the consent form.

4.6.2 Confidentiality and anonymity

Whitley (2002) claims that research participants have the right to privacy. The researcher should do everything in their power to safeguard the information divulged in strict confidence by participants. The researcher ensured that respondents' information, provided on the questionnaires, was treated confidentially during the process of conducting the study, and the researcher did not share any details with anyone outside the study. Anonymity was secured by not capturing identifying information.

4.6.3 Voluntary participation

Whitley (2002) states that it is the researcher's responsibility to protect a participant's autonomy. This is achieved by allowing them to decide for themselves if they would like to take part in the particular study. This is the principle of voluntary participation. The researcher ensured this principle by explaining to potential participants the nature of the study and that they had the ultimate choice to participate or not. It can be seen that participation in this study was solely voluntary where participants had to make a choice. It was not forced on them. Particularly, respondents in the student sample that participated in the study were not advantaged or disadvantaged in any way and were free to deny participation without any negative consequences.

In the following section the researcher will explain the different analyses performed in this study, with the outcomes of these analyses presented in the subsequent chapter.

4.7 Analysis

The data gathered from the questionnaires were processed and analysed with the statistical package SPSS version 17 and 19 for Windows. The researcher made use of the following statistical methods to derive meaningful conclusions from the data gathered.

According to Howell (1999) if the purpose is to describe a set of data, descriptive statistics will be employed. One of the first things to accomplish with the data is to graph it, then to calculate the mean scores and other measures and then look at the extreme scores or oddly shaped distribution of scores (Howell, 1999). Firstly, descriptive statistics were calculated for the data so as to obtain descriptive information for the sample. For example, the mean age of the participants, the number of men versus women and racial demographics.

Secondly, the researcher made use of both non-parametric and parametric statistics to test for differences between variables. Non-parametric statistics, according to Field (2009), are a collection of statistical procedures that do not depend on the restrictive assumptions of those required of parametric tests. These procedures do not assume that the sampling distribution is normally distributed. These tests would include the Chi-square test, Spearman's rank order correlation and Wilcoxon signed rank test, to name a few. Parametric statistics are more powerful than non-parametric statistics and they make more stringent assumptions about the data. Each of the parametric statistics (such as ANOVA, *t*-test and Pearson correlation) has additional assumptions which need to be taken into account before these statistics can be utilised (Field, 2009; Pallant, 2010).

4.7.1 Chi-square

The non-parametric statistical method used was the Chi-square method. According to Field (2009), to determine if there is a relationship between two categorical variables, the Chi-square test can be used. In the current study the Chi-square test examined the relationship between variables such as respondent age, race and gender and their response to whether or not they would purchase generic medication. As explained more fully in the subsequent chapter, this second variable was based on the respondents' answer to the question assessing which medication they would choose if faced with the choice in a pharmacy (original medication, generic medication or not sure).

Pallant (2010) indicates that there are two different Chi-square tests, the Chi-square test for goodness-of-fit and the Chi-square test for independence. The difference between the two is as follows:

- Chi-square test for goodness-of-fit, also indicated as the one-sample chi-square, is used to compare the proportion of cases from a sample with hypothesised values or those obtained previously from a comparison population. All that is needed in this test is one categorical variable and a specific proportion against which to test the observed frequencies (Pallant, 2010).

- Chi-square test for independence, is used when exploring the relationship between two categorical variables. This test compares the observed frequencies of the cases that occurred in each of the categories, with the values that would be expected if there is no association between the variables being measured. All that one needs in this instance is two categorical variables with two or more categories in each to calculate the Chi-square value (Pallant, 2010).

The researcher made use of the Chi-square test for independence because there were a number of categorical variables that were assessed to see if there is a relationship between them. In total there were seven Chi-square tests for independence conducted which can be viewed in the following chapter.

The Chi-square non-parametric test was also used in the analysis of data obtained for the LSM measure. This was used in the current study to assess participants' socio-economic profiles. According to Haupt (2006), the LSM measure was designed to profile the market into relatively homogeneous groups. It is based on a set of marketing differentiators which group people according to their living standards, using criteria such as degree of urbanization and ownership of cars and major appliances or assets. Essentially the LSM is a wealth measure based on standards of living rather than income. This measure contains 29 variables, 15 of which are household items and the other items for example are the area where the house is located and if the household has a vehicle, and how many cell phones (mobile phones) are in the household (Haupt, 2006). Refer to Table 1 below for a clearer indication of the items found in the LSM measure. In fact, the LSM measure does not even include items related to income. Interestingly enough, Haupt (2006) mentions that variables such as income, education and occupation were tested as part of the first LSM but did not add anything to the strength of the measure. The results of the sample's market profile, based on the LSM can be viewed in the following chapter.

Table1. The SAARF Universal LSM

SAARF Universal LSM 2004	
1. Hot running water	16. Have a deep freeze
2. Fridge/freezer	17. Water in home or on stand
3. Microwave oven	18. Have MNet and/or DStv
4. Flush toilet in house or on plot	19. Have a dishwasher
5. VCR in household	20. Metropolitan dweller
6. Vacuum cleaner/floor polisher	21. Have a sewing machine
7. Have a washing machine	22. DVD player
8. Have a computer at home	23. House/cluster/ town house
9. Have an electric stove	24. 1/more motor vehicles
10. Have TV set(s)	25. No domestic worker
11. Have a tumble dryer	26. No cell phone in household
12. Have a Telkom telephone	27. 1 Cell phone in household
13. Hi-fi or music center	28. None or only one radio
14. Built-in kitchen sink	29. Living in a non-urban area
15. Home security service	

Source: SAARF website (2006) http://www.saarf.co.za

The main reason the researcher used this non-parametric statistical procedure was to explore the relationship between variables. Specifically, to explore the relationship between a consumer's race, age, gender and LSM status and how these factors contribute to certain attitudes towards medication, be it for or against generic medication.

Parametric tests utilised in the study include factor analysis, MANOVA and regression analysis. An explanation of these parametric tests is provided in the following section.

4.7.2 Factor analysis

The researcher utilised factor analysis, specifically principle component analysis, in this study. Factor analysis was used to condense the large number of variables represented in the extensive questionnaire into smaller, more managable clusters (or factors), which could subsequently be used for other analyses (Field, 2009).

According to Pallant (2010) there are two main approaches to factor analysis, namely exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). As the name suggests EFA is often used in the early stages of research whereas CFA is more complex and used later in reseach endevours. CFA is normally used to test or confirm specific hypotheses or theories and conforms to a fixed number of factors based on these theories or hypotheses. This is not what the researcher wanted to do, however, and so that is why EFA

was chosen. EFA is used to explore the interrelationship between a set of variables and does not rely on a theory or confirmation of a theory (Pallant, 2010). Considering it was not the aim of the current study to evaluate whether the data conformed to a pre-existing theoretical model, but instead was exploratory in nature, EFA was found to be more appropriate.

Dancey and Reidy (2002) mention that factor analysis deals with patterns of correlations. In addition to the above mentioned distinction between EFA and CFA, a further distinction can be made between principal component analysis (PCA) and principal axis factoring or factor analysis (FA). Pallant (2010) mentions these types of analysis are both more or less related techniqiues in that they attempt to produce a smaller linear combination of the original variables. By using PCA the original variables are transformed into a smaller set of linear combinations using all the variance. Variance is an estimate of the avarage variability or the spread of a dataset (Field, 2009). With FA, factors are estimated using a mathematical model where the shared variance is analysed. It is stated that PCA is the correct choice if the aim is to arrive at an empirical summary of the data set. FA is the answer when trying to gain a theoretical solution not contaminated by unique and error variability. As mentioned, PCA as a technique, was used in this study to reduce the dataset, containing a large number of variables, into a set of smaller variables called components or factors (Agresti & Finlay, 1997; Dancey & Reidy, 2002; DeCoster, 1998; Field, 2009; Howell, 2002; Pallant, 2010; Tredoux & Durrheim, 2002; Whitley, 2002).

These authors also state that, with the use of PCA, all variances in the dataset are analysed both with the shared and unique variances. PCA also changes the original variables into a smaller set of uncorrelated parts and only the shared variances are analysed while the unique variances are excluded and some of the error variances assumed. PCA, as a technique, is also exploratory in nature, only done to reduce a large data set into a smaller more manageable one (Agresti & Finlay, 1997; Dancey & Reidy, 2002; DeCoster, 1998; Tredoux & Durrheim, 2002). The main reason for using factor analysis was to reduce the questionnaire's vast number of questions into a more manageable format. The researcher used all 83 items of Section 3 of the questionnaire (in-depth medication attitudes) to conduct the factor analysis. The outcome of the factor analysis was that nine components clustered together.

More information will be given in the following chapter outlining the difference between the main approaches and techniques of factor analysis. In the next chapter, the findings of the factor analysis will be shared.

4.7.3 MANOVA

The researcher also made use of multivariate analysis of variance (MANOVA) within this study. According to Pallant (2010) and Field (2009), the MANOVA is an extension of the analysis of variance (ANOVA) for use when there is more than one dependent variable. The ANOVA can only be used when there is one dependent variable (also known as a univariate test). In this instance there was more than one dependent variable and so, a MANOVA (also known as a multivariate test) was performed. The dependent variables should be related in some way or there should be a good reason for considering them together. The MANOVA also compares the groups, indicating whether the mean differences between the groups, on the combination of each of the dependent variables, are likely due to chance (Pallant, 2010).

The question then arises; why not just perform more than one ANOVA if there is more than one dependent variable? If more than one ANOVA is conducted, there is an inflated risk of a type one error. Put simply, if more than one ANOVA is run and a significant result is found, in reality there may be no difference between the groups. One could wrongly interpret the results as significant when in fact it is not significant (Field, 2009; Pallant, 2010; Rubin, 2010; Whitley, 2002). To get a better understanding of the differences in the sample according to variables such as race and gender, against the factors identified using the factor analysis, a MANOVA was chosen.

4.7.4 Regression analysis

A regression analysis was conducted to predict the outcome on the use of generic medications through the following variables: attitudes towards generic medications and use of generic medications. According to Tredoux and Durrheim (2002), regression equations are essentially mathematical summaries of what is thought to be the relationship between two variables. This mathematical relationship can help predict the relationship between the variables in question. According to Dancey and Reidy (2002), psychologists are interested in using linear regression to learn the effect of one variable on another. They also mention that it is similar to simple correlational analysis. However, where a correlational analysis concludes how strongly two variables relate to each other, a linear regression analysis looks at how much one variable will change if the other variable changes. Thus if one variable

changes a certain amount it will be possible to estimate how much the other variable will change (Dancey & Reidy, 2002).

The main reason this statistical procedure was used, was to gain insight into how the questionnaire functioned. The researcher would like to develop this questionnaire in a follow-up study and this analysis makes it easier to focus on the particular factors that have been established to be related. Thus, the researcher will only focus and elaborate on the sets of questions identified with this statistical procedure.

In the following section aspects relating to statistical tests assessing the reliability and validity of the developed questionnaire, will be discussed.

4.8 Evaluation of the Psychometric Properties of the Instrument

4.8.1 Reliability

The researcher conducted reliability analyses on three sections of the measurement instrument, individually and overall. These sections include section 2 (general medication attitudes), section 3 (in-depth medication attitudes) and section 4 (LSM).

According to Pallant (2010) the reliability of a scale indicates the extent to which it is free from random error. Random error is caused by factors that randomly affect the measurement of a variable across the sample. An example of this is the respondents' mood which might affect performance either positively or negatively (Trochim, 2006). There are two frequently used indicators of a scale's reliability, namely, test-retest reliability and internal consistency. The acceptable range of reliability is between .65 to above .90. However it is mentioned that there is no sacred level or acceptable or unacceptable alpha value. In some cases, with low alpha levels, the measure might still be useful (PsyAsia Support Centre, 2011; Schmitt, 1996). Since the scale was only administered once, the researcher will only focus on internal consistency for this study.

Internal consistency is the degree to which the items that make up the scale, are all measuring the same fundamental attribute (Pallant, 2010). Internal consistency can be measured in a number of ways but the most common statistic used is Cronbach's alpha. This statistic provides an indication of the average correlation among the items that make up the measurement scale (Pallant, 2010). According to Colman (2001), Cronbach's alpha means the following:

> Mathematically, it is the equivalent of the average of all possible split-half reliability coefficients of the test. If certain assumptions are met, it ranges from 0 (zero internal consistency) to 1 (perfect internal consistency); a negative alpha coefficient indicates that items of the scale are negatively correlated and that an inappropriate reliability model is being used. (p. 177)

It is also mentioned by Pallant (2010) that a minimum α = .7 is recommended and that the Cronbach alpha values are dependent on the number of items in the scale. Pallant (2010) is of the opinion that if there are fewer than ten items in the scale, the Cronbach alpha value might be small. In this situation it would be better to calculate and report on the inter-item correlation for the items. The most favourable values range from between .2 to .4. The second section of the questionnaire, (general medication attitudes) has less than ten items, six to be exact, accounting for the decision to use inter-item correlation to identify the reliability level. The researcher thought it would be valuable to include section 2 of the questionnaire in the reliability analysis because all the non-parametric statistics are based on this section of the questionnaire. Taking this into consideration the inter-item correlation is .18 with values ranging from -.18 to .65 (Table 2) which is more than the suggested range of .2 to .4 by Pallant (2010). This suggests a strong relationship among the items even if the mean is .18.

Table 2. Inter-item correlation of section 2 of the questionnaire

Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.180	-.175	.654	.829	-3.733	.054	6

The third section's (in-depth medication attitudes) reliability score is α = .71 (Table 3 below), which is an acceptable reliability value. This means that questions presented within this section of the questionnaire are reliable in what they measure, thus indicating the in-depth attitudes of consumers regarding generic medication's price, efficacy and so forth.

Table 3. Reliability score for section 3 of the questionnaire

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.682	.708	83

The LSM section's (section 4) reliability score is α = .67 (Table 4 below), which is in the low to moderate range of reliability according to Frary (2011) (who mentions a low to moderate reliability of between .60 to .79). The researcher calculated the reliability score for the current measure. This score cannot be compared with other studies as there are no published reliability scores on this measure nor are scores provided by the developers (SAARF) of this measure. By calculating the reliability score, the researcher feels he has contributed towards the dissemination of the LSM's psychometric properties. This is a valuable contribution because it is said that the LSM is the most widely used marketing research tool in South Africa (ConsumerScope, 2009; Eighty20, 2008; Truter, 2007). However for future reference, it might be useful to look into developing a more reliable measuring instrument to establish the market segment of the possible participants. One can also work with the developers of the LSM measure to establish a higher reliability score for this measure, since it is mentioned that the LSM is widely used.

Table 4. Reliability score for section 4 of the questionnaire

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.625	.672	29

An overall reliability score (without the LSM) for this questionnaire is α = .68 (Table 5 below), which is teetering on the brink of an acceptable alpha coefficient. One can see that certain sections of the instrument are very reliable and other sections are not as reliable. The overall reliability for this measure is almost acceptable but for future use of this instrument, the reliability should be revisited.

Table 5. Overall reliability score (without LSM)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.667	.678	119

4.8.2 Validity

According to Colman (2001, p. 773), the definition of validity is, "…the extent to which a test measures what it purports to measure, or the extent to which specified inferences from the test's scores are justified or meaningful."

According to Pallant (2010), the following different types of validity can be identified. Content validity refers to the adequacy with which a measure or scale has sampled from the intended domain of content. Criterion validity is concerned with the relationship between scale scores and some specified, measurable criterion. Construct validity involves testing a scale, not against a single criterion but, in terms of theoretically derived hypotheses concerning the nature of the underlying variable or construct. Content validity was not measured because the focus was not on evaluating educational or occupational achievements and a panel of expert subjects were also not used to evaluate the measure during construction (Foxcroft & Roodt, 2005). The researcher however did employ a form of criterion validity called construct validity (Trochim, 2006).

An additional type of validity that was relevant to the current study is that of face validity. Gregory (2007) mentions that an instrument has face validity if it looks valid to the respondents that complete it. The researcher assessed face validity of the instrument during the pilot study that was conducted. Respondents commented on the degree to which they found items to appear to measure what they intended to. The whole instrument (section 1 through to section 4) was assessed to determine if face validity was acceptable throughout. Gregory (2007) emphasizes that face validity is a matter of the social acceptability of a measure and it is not a technical form of validity like content or construct validity. In the discussion that follows the researcher will focus on construct validity as a technical form of validity.

The focus on construct validity was due to a desire to ensure that the measurement instrument developed was valid in its purposes to measure the attitudes of respondents, particularly consumers' attitudes towards generic medication. Only section 3 (in-depth medication attitudes) was used to assess construct validity. According to Cohen and Swerdlik (2005) construct validity refers to the appropriateness of inferences drawn from test scores regarding the standing of the individual on a variable called a construct. The authors expand on the idea of a construct by stating that it is an informed scientific idea, such as, attitudes, anxiety, self-esteem and many others. Gregory (2007), Cohen and Swerdlik (2005) and Kaplan and Saccuzzo (2005) all agree that constructs are unobservable,

something we cannot touch or feel, an intangible idea that a researcher or test developer may raise in a questionnaire to test certain behaviours or criterion performance. Trochim (2006) adds to this discussion by mentioning that construct validity is the degree to which conclusions can legitimately be drawn from the operationalization in the study, to the theoretical constructs on which those operationalizations are based. Trochim (2006) goes on by saying that construct validity is almost the same as external validity, but where external validity focuses on generalising from the study context to other people, places and times, construct validity focuses on generalising the measure to the concept of the measure. Therefore, does this measurement instrument measure what it is supposed to measure?

Cohen and Swerdlik (2005, p. 176) provide a number of guidelines on how to obtain evidence of construct validity. The researcher will, however, focus only on identifying construct validity within measures, through assessing whether point being that the measure is homogeneous, i.e. measuring a single construct.

From this point, Cohen and Swerdlik (2005) require the researcher to illustrate that the measure can show construct validity by measuring homogeneous constructs. How can this be done? According to Murphy and Davidshofer (2005), one of the methods that can be utilised to study the construct validity of a measure is by using the statistical technique called factor analysis. These authors mention that factors are much like constructs and factor analysis provides an analytical method for estimating the correlation between the variable and the score on the factor. Factor analysis also provides a summary of information about the possibility of relationships among a large number of measures. The description of a construct provides information about the expected relationships among variables. An example, taken from the current study, would be to take all variables (questions) regarding the attitudes consumers' have towards the quality of generic medication, and group them together to form a single factor, named Generic Medication Quality. If all these variables are grouped together, then the conclusion can be drawn that they share a common relationship with each other, hence their clustering together to form a single factor. Factor analysis can then help determine whether this pattern or relationship does exist (Cohen & Swerdlik, 2005; Gregory, 2007; Kaplan & Saccuzzo, 2005; Moerdyk, 2009; Murphy & Davidshofer, 2005; Schempers, 1992). As all of these authors mention that factor analysis can be used to identify construct validity. Therefore, factor analysis of this measurement instrument was conducted. As discussed in point 4.6.2, factor analysis was also used as a data reduction method.

Of the original 123 questions, only section 3 (in-depth medication attitudes) which consisted of 83 questions, was entered into a factor analysis. A first order factor analysis was conducted. It came to be that there were six factors with a high factor loading on the first item. A second order factor analysis was conducted where a further four factors were identified. In total all 83 questions were divided up into nine distinct factors. It came to the fore that there were high factor loadings on the six first order factors and also a high loading on the four second order factors. The 83 questions in total were reduced to nine factors, where a couple of questions grouped together to form a factor or construct. These newly formed factors are homogeneous in what they measured. The nine factors are as follows:

- Consumers' Ideas about Generic medication
- Pro Branded Medication
- Consumers Ideas of Professionals Prescribing
- Generic Medication Quality
- Consumers Purchase Cheaper Products
- Consumers Ideas of Quality and Efficacy of Generic Medication
- Prescriptions
- Consumers Recommendations
- Variable Mix. (three variables loaded onto this variable, but were not significant for statistical purposes. They were left out of the analysis).

All questions pertaining to consumers' and their ideas about generic medication (for example, being for or against it) grouped together to form this factor or construct. A more thorough discussion on factor analysis will be provided in the subsequent chapter.

In the following chapter all of the analyses that were conducted will be brought into context to give meaning to the research questions posed in the beginning of this thesis.

Chapter 5 – Results

5.1 Introduction

In this chapter, data obtained in this study will be discussed in conjunction with methods of data analysis. As discussed in the previous chapter, several statistical methods were used. To summarise, frequencies were used to analyse demographic variables and a factor analysis was used to condense the questionnaire into a more manageable form in order to conduct further analyses. Several non-parametric tests, namely Chi-square tests, were conducted to establish comparisons between age, race and sex groups for questions posed on the questionnaire. A multiple analysis of variance (MANOVA) was performed to identify sex and race differences between consumers' attitudes towards medication. A regression analysis was also conducted to determine which product, generic or original, consumers will purchase when presented with a choice in a pharmacy. Lastly, the questionnaire was tested for reliability and validity, the findings of which are presented in the previous chapter.

5.2 The Questionnaire

Before discussing the results obtained from the analyses, it would be beneficial to first outline the questionnaire utilised. The researcher developed his own questionnaire, consisting of four sections. The first section requests biographical information. These closed ended questions required respondents to indicate their race, sex and so forth.

The second section of the questionnaire consists of six closed ended questions measuring the respondents' broad ideas around pharmaceutical products (yes, no and not sure scale). With these types of questions, responses are easily transformed into numerical values in order to conduct the necessary statistics (Pallant, 2010).

The third section of the questionnaire comprises 83 closed ended questions asking in-depth questions on attitudes, experiences, pricing and recommendations of medications. These questions are responded to on a Likert-type scale with five choices: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree. Again, these questions are easily transformed into numerical values for manipulation by a statistical programme.

The last section consists of a living standards measure (LSM) (discussed in more detail later in the chapter). This questionnaire was developed by the South African Research Foundation (SAARF, 2006), and measures the living standards of each individual. This

allows for the exploration of the relationship between socio-economic status and respondents' attitudes towards generic medications. The LSM also comprises a closed ended format with 29 statements requiring respondents to indicate whether each statement is true or false. By various calculation methods (calculate only for the answers that the individual indicated as true, add all the weighted scores of the true answers, then subtract this answer from the constant 0.442690 the answer will give the LSM value for each item) the LSM score is computed for each individual. The LSM score ranges from a low LSM of one, to the highest LSM of ten.

5.3 Overview of Statistics

Evans (2010) mentions that descriptive statistics refer to a collection of quantitative measures and ways of describing the data obtained. This includes measures of central tendency (the mean, median and the proportion), measures of dispersion (range, variance and standard deviation) and frequency distributions (histograms). The main aim of descriptive statistics is to describe the sample by obtaining a broad and general idea of its characteristics.

Inferential statistics refer to the "technique for inferring conclusions about populations on the basis of data from samples. The major objective is usually to decide whether the results of the research are statistically significant" (Colman, 2001, p. 363). Therefore, with the help of these statistics, data obtained are tested for statistical significance.

Within inferential statistics, there are two types of statistical methods called parametric and non-parametric statistics or tests. According to Pallant (2010), parametric tests (e.g. MANOVA, *t*-tests) make assumptions about the population from which the sample has been drawn, and often includes assumptions about the shape of the population distribution (for example, the population is normally distributed).

A parametric test is one that requires data from one of the large variety of distribution methods that have been described by statisticians (Field, 2009). For data to be parametric, certain assumptions must be true. These assumptions differ amongst the methods. Most of the parametric tests are based on a normal distribution and should meet four assumptions for the results to be accurate, these are:

- Normally distributed data: The foundations behind hypothesis testing rely on having data that is normally distributed. If this assumption is not met, the logic behind hypothesis testing is flawed. Field (2009) defines a normal distribution as

"*a probability distribution* of a random variable that is known to have certain properties. It is perfectly symmetrical (has a *skew* of 0) and has a kurtosis of 0" (p. 790), emphasis in original.

- Homogeneity of variance: This assumption means that the variances should be the same throughout the data. It is the assumption that the variance of one variable is stable at all levels of another variable (Field, 2009).
- Interval data: Data should be measured at the interval level. Field (2009) provides the following definition regarding interval data; "Data measured on a scale along the whole of which intervals are equal. For example, people's ratings of a book on Amazon.com can range from one to five; for these data to be interval it should be true that the increase in appreciation for this book represented by a change from three to four along the same scale should be the same as the change in appreciation represented by a change from one to two, or four to five" (p. 788).
- Independence: Field (2009) defines independence as "the assumption that one data point does not influence another. When data come from people, it basically means that the behaviour of one person does not influence the behaviour of another" (p. 787). Independence is also different depending on the test one is using.

Non-parametric statistics, on the other hand, do not have the stringent criteria that the parametric statistics have and do not make assumptions about the underlying population distribution. Field (2009) defines non-parametric statistics as, "a family of statistical procedures that do not rely on the restrictive assumptions of parametric tests. In particular, they do not assume that the sampling distribution is normally distributed" (p. 790).

Non-parametric statistics were primarily used in the analysis of consumers' attitudes towards medication, specifically, when analysing how demographic characteristics are related to reported preference to purchase either generic or original medication. This method was used because of the categorical nature of the questions asked in the section of the questionnaire assessing demographic information (for example, when answering "male" or "female", or "yes", "no" or "not sure"). Pallant (2010), Rubin (2010) and Field (2009) mention that non-parametric techniques are best suited to data measured on categorical and ordinal scales. Non-parametric statistics were therefore mainly utilized within this explorative study in order to establish relationships between the identified variables and to determine if there were any significant findings to be explored in a later study.

The parametric statistics used, aimed at grouping items of the questionnaire into meaningful factors to determine which significant relationships exist, if any, in the data. Parametric statistics were also used to explore which factors, as identified during the factor analysis, would be valuable for future research on this topic. The main purpose of using parametric statistics was for explorative reasons. Due to the non-representative nature of the sample utilized, parametric statistics should be used with caution.

The results will be discussed in the following section, beginning with descriptive and non-parametric results relating to respondents' demographic data and their preference for either generic or original medication. This will be followed by a presentation of parametric statistics.

5.4 Descriptive and Non-parametric Statistics

5.4.1. Demographic and general information

What follows are some of the demographic characteristics of the sample that were represented in this study. In total there were 266 respondents. The mean age of the group was 29.67 years with a minimum age of 19 and a maximum of 79. The modal age was 20 years. There was a total of 47 males and 219 females. Regarding the racial grouping of respondents, 248 identified themselves as White, and 18 as Black[2].

In the questionnaire, what followed were more general questions relating to ideas around medical aid and medication. The following information was identified as valuable. Eighty seven percent of respondents were found to be on a medical aid, while 12.8% indicated that they did not belong to a medical aid. Ninety six percent of respondents indicated that they knew what generic medication was and 4.1% indicated that they were not sure. Eighty seven percent of respondents said that they had used generic medication before, with 75.6% mentioning that generics they used were effective, 5.6% were ineffective and 15.8% were not sure if their generic medication was more effective than the original product. If brought before a choice in a pharmacy, 41% mentioned that they would select the original medication, 41.4% indicated they would select the generic medication and 16.9% were not sure which medication they would select.

[2]The initial racial categories were, 248 White, 14 Black, 3 Coloured and 1 Indian. Because of the fewer number of respondents from a wider ethnic background, the researcher felt it would be better to combine the four ethnic groups into two main categories. This was also done to ease the statistical procedures used. The categories are White and Black. Respondents comprising the Black group include Black, Coloured and Indian respondents totalling 18 Black and 248 White respondents.

What is of interest is that 75.6% stated that, based upon previous use, generics were found to be effective, however, less than half (41.4%) stated that they would choose generic medications in the future. This inconsistency will be explored in further detail in the following chapter.

5.4.2 Descriptive information regarding consumer attitudes towards generic medication

Within the questionnaire, there were questions posed pertaining to consumer attitudes towards medication, specifically generic medication. The following discussion explores the results of these questions.

5.4.2.1 Attitudes regarding efficacy of generic medication

Fifty five percent of respondents indicated that they prefer to take original medication, 88.9% indicated that generic medication has a place in the medication environment and 84.6% disagreed with the statement that generic medication is a waste of money. Seventy seven percent felt that generic medication was effective and 57.1% agreed that generic medication works as effectively as the original product. Ninety five percent specified that they would take the generic alternative if it is just as effective as the original medication. Ninety six percent agreed that generic medication should be just as effective as the original medication. Effectiveness of medication is a key factor where, 91.5% revealed that quality of a product ensures effectiveness of the product and 79.3% disagreed with the statement that generic medication is ineffective and would therefore not use it. Forty four percent thought that the quality of generic medication is similar to that of the original medication.

In summary, more than half the respondents prefer original medication to generics. A large percentage indicated that there is a place for generic medication and that it is effective. The majority of respondents indicated that they would purchase generic medication if it is just as effective as the original. It was also emphasized that the quality of medication influences its effectiveness.

5.4.2.2 Recommendations by physicians, pharmacists and friends / family

When respondents were asked about pharmacist recommendations towards generic medication, 85.4% believed this person to be knowledgeable about medication and 84.3% indicated they would then buy a generic product. When respondents were asked about a

physician's recommendations towards generic medication, 87% believed this person to be knowledgeable about medication and 91.2% indicated they would then buy a generic product. Fifty eight percent mentioned they would use generic medication if recommended by friends and 68.6% indicated they would use generic medication if recommended by family members. Sixty six percent specified they would recommend generic medication to friends/family and 59% mentioned they would make such recommendations because of the price. Seventy nine percent indicated they would recommend generic medication because it had worked for them and 61.3% indicated they would recommend generic medication because they felt the quality is the same as that of the original medication.

In summary, more respondents trust their physician over a pharmacist when recommendations are given for a generic product. However, a large percentage would purchase generics if recommended by either a physician or pharmacist. More than half the respondents would purchase generic medication if recommended by friends, but they would trust their family members more if recommended by them. More than half the respondents indicated they would recommend generics to friends/family due to their price, efficacy and quality.

5.4.2.3 Respondents' willingness to ask for cheaper alternative medication

When questioned if they ask for generic medication out of their own when at a physician or pharmacy, 50.4% disagreed and only 32.7% indicated that they would. Sixty eight percent mentioned that they had used generic medication in the past and it had worked for them.

In summary, only a small percentage asked, out of their own, for generic medication if at a physician or in a pharmacy.

5.4.2.4 Pricing of generic and original medication

Sixty one percent indicated they would buy generic medication if it was cheaper than the original medication. Sixty four percent mentioned that their medical aid pays for generic medication, and only 39.9% agreed that the purpose of medical aids is to save consumers money and, therefore, should prefer generic medication. However, 85.1% mentioned they would rather pay more if they know that the original medication will work more effectively. Sixty one percent agreed that some original medication is expensive and cheaper alternatives would be better.

In summary, more than half the respondents indicated they would purchase generic medication if it were cheaper than the original because original medication can be very expensive. Less than half the respondents mentioned that generic medication is a must in order to save money, even if their medical aid is meant to help save money. A very high percentage indicated they would pay a higher price for medication knowing that it would work effectively.

5.4.2.5 Respondents' ideas surrounding prescriptions and product branding

Fifty four percent disagreed that one does not need a valid physician's prescription to buy generic medication. Sixty four percent mentioned that one does need a valid prescription for all types of generic medication. Sixty nine percent indicated that the products' branding plays a role in purchasing medication, especially original medication.

In summary, more than half the respondents know that one requires a valid physician's prescription to buy medication, even generic medication. There are respondents who think it is possible to buy generic medication without a valid prescription. Branding of medication also plays a leading role in the purchasing of generic medication, as indicated by more than half the respondents.

5.4.3 Non-parametric analysis of demographic data

In the following section, the relationships between certain demographic variables, such as gender, age and race, and variables such as medication preferences and medical aid status, are explored. As seen in Section 5.3 (Overview of Statistics), questions posed in the demographic section of the questionnaire elicited responses of a categorical nature, making it appropriate to perform non-parametric statistics with this section of the collected data. The non-parametric statistic method used is called Chi-square. There are two different types of Chi-square tests called the Chi-square test for goodness of fit and the Chi-square test for independence. The Chi-square test for independence was the chosen method due to its ability to determine whether two categorical variables are related. It compares the frequency of cases found in the various categories of one variable across the different categories of another variable. This method is also used when exploring relationships between two categorical variables (Pallant, 2010).

The researcher conducted Chi-square analyses to measure the independence of the following variables: gender, age, race, medical aid status, socio-economic status (measured

using the LSM) and reported purchasing behaviour (measured as choice to purchase generic medication, choice to purchase original medication, or unsure of choice). The following was found:

5.4.3.1 Gender and purchase behaviour

A Chi-square test for independence indicated no significant association between gender and the choice to purchase generic or original medication, χ^2 (2, N = 259) = .98, p = .61, Cramer's V = .061. Of interest was, using this Chi-square test, that of the 45 male respondents 46.7% (n = 21) indicated that they would choose to take original medication if given a choice. 35.6% (n = 16) of men mentioned that they would choose generic medication and 17.8% (n = 8) mentioned they were not sure which of the two types of medication to choose if given the choice. The women indicated the following: of the 214 women 40.2% (n = 86) mentioned they would choose original medication if they had a choice and 43.5% (n = 93) mentioned they would choose generic medication, if given the choice, 16.4% (n = 35) of women mentioned they were unsure which of the medications to choose.

There are, however, interesting comparisons one can make between men and women. Percentage wise, more men would choose original medication (21 men in comparison to only 16 men who would choose generic medication) and more women would choose generic medication (93 women in comparison to 86 women who would choose original medication). As mentioned previously, there were also respondents who were unsure which medication they would choose. Eight men were unsure, compared to those who would choose original medication (n = 21) and those would choose generic medication (n = 16). There were 35 women who were unsure which medication to choose, compared to those who would choose generic medication (n = 93) and those who would take original medication (n = 86). In the next chapter, there will be an in-depth discussion regarding these figures, focusing on respondents who were unsure which medication to take if given a choice. Refer to Table 6 below for detailed information.

Table 6. Gender and purchase behaviour cross-tabulation

If you where brought before a choice in a pharmacy would you take * Sex Crosstabulation

			Sex		
			Male	Female	Total
If you where brought before a choice in a pharmacy would you take	Original Medication	Count	21	86	107
		% within If you where brought before a choice in a pharmacy would you take	19.6%	80.4%	100.0%
		% within Sex	46.7%	40.2%	41.3%
		% of Total	8.1%	33.2%	41.3%
	Generic Medication	Count	16	93	109
		% within If you where brought before a choice in a pharmacy would you take	14.7%	85.3%	100.0%
		% within Sex	35.6%	43.5%	42.1%
		% of Total	6.2%	35.9%	42.1%
	Not Sure	Count	8	35	43
		% within If you where brought before a choice in a pharmacy would you take	18.6%	81.4%	100.0%
		% within Sex	17.8%	16.4%	16.6%
		% of Total	3.1%	13.5%	16.6%
Total		Count	45	214	259
		% within If you where brought before a choice in a pharmacy would you take	17.4%	82.6%	100.0%
		% within Sex	100.0%	100.0%	100.0%
		% of Total	17.4%	82.6%	100.0%

5.4.3.2 Age and product purchased

A Chi-square test was done to determine the age differences and what medication an age category would most likely prefer. A Chi-square test of independence indicated no significant association between the person's age and what product they would purchase if given a choice, χ^2 (2, *N* = 245) = 1.87, *p* = .39, phi = .09.

From the 245 respondents that divulged information in this section, in the 19 to 49 year category (*n* = 220) 40.9% (*n* = 90) of respondents indicated that they would buy the original medication, 41.4% (91) mentioned that they will buy the generic medication, and 17.7% (*n* = 39) mentioned that they were not sure which product to purchase. In the 50 to 79 year category (*n*=25), 40% (*n* = 10) mentioned that they would buy the original product, 52% (*n* = 13) mentioned that they would buy the generic product and 8% (*n* = 2) mentioned that they were not sure which product to buy.

What is of interest is that, in the age category 50 to 79, more people would purchase generic medication and fewer people were unsure which product to purchase. In the younger age category, 19 to 49, the percentages are almost similar for purchasing of generic and original

medication, with more people being unsure which medication to purchase (as can be seen in Table 7 below).

Table 7. Age and product purchased cross-tabulation

CHIAge1 * If you where brought before a choice in a pharmacy would you take Crosstabulation

			If you where brought before a choice in a pharmacy would you take			
			Original Medication	Generic Medication	Not Sure	Total
CHIAge1	Age19to49	Count	90	91	39	220
		% within CHIAge1	40.9%	41.4%	17.7%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	90.0%	87.5%	95.1%	89.8%
		% of Total	36.7%	37.1%	15.9%	89.8%
	Age50to79	Count	10	13	2	25
		% within CHIAge1	40.0%	52.0%	8.0%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	10.0%	12.5%	4.9%	10.2%
		% of Total	4.1%	5.3%	.8%	10.2%
Total		Count	100	104	41	245
		% within CHIAge1	40.8%	42.4%	16.7%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	100.0%	100.0%	100.0%	100.0%
		% of Total	40.8%	42.4%	16.7%	100.0%

5.4.3.3 Race and product purchased

A Chi-square test was conducted to determine the difference between race categories and choosing a product. A Chi-square test of independence indicated no significant association between race and choosing a medication when in a pharmacy, χ^2 (2, N = 259) = 5.00, p = .08, phi = .14. Some interesting results from this analysis showed that of the 242 white respondents, 39.7% (n = 96) would choose buy the original medication, 43.8% (n = 106) would choose to buy the generic medication and 16.5% (n = 40) indicated that they did not know which medication to choose. Of the 17 Black respondents 64.7% (n = 11) indicated that they would choose the original medication, 17.6% (n = 3) mentioned that they would choose generic medication, and 17.6% (n = 3) indicated that they did not know which medication to choose, if given a choice.

It is interesting to see that more Black individuals would purchase original products and more white individuals would purchase generic medication, with more or less the same percentage of uncertainty towards choice between the two products. This can be seen in Table 8 below.

Table 8. Race and product purchased cross-tabulation

NewRaceWB * If you where brought before a choice in a pharmacy would you take Crosstabulation

			If you where brought before a choice in a pharmacy would you take			
			Original Medication	Generic Medication	Not Sure	Total
NewRaceWB	White	Count	96	106	40	242
		% within NewRaceWB	39.7%	43.8%	16.5%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	89.7%	97.2%	93.0%	93.4%
		% of Total	37.1%	40.9%	15.4%	93.4%
	Black(Coloured and Indian)	Count	11	3	3	17
		% within NewRaceWB	64.7%	17.6%	17.6%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	10.3%	2.8%	7.0%	6.6%
		% of Total	4.2%	1.2%	1.2%	6.6%
Total		Count	107	109	43	259
		% within NewRaceWB	41.3%	42.1%	16.6%	100.0%
		% within If you where brought before a choice in a pharmacy would you take	100.0%	100.0%	100.0%	100.0%
		% of Total	41.3%	42.1%	16.6%	100.0%

In the following three Chi-square analyses, the focus is on gender, age, race and medical aid status. The aim of this analysis was to further assess how individuals account for their choice in purchasing either generic medication or original medication. This is of particular concern since it was stated in the literature review that certain medical aid schemes will pay up to 100% of the medical charge if the individual chooses generic medication. Due to this, it was deemed important to determine if there are other factors, like saving while being on a medical aid, that would make an individual choose one product over the other.

5.4.3.4 Gender and medical aid status

A Chi-square test for independence (with Yates Continuity Correction) indicated no significant association between gender and medical aid status, χ^2 (1, N = 260) = .51, p = .47, phi = -.06. From the total sample, 226 respondents indicated that they were on a medical aid scheme. This group of participants can be broken down into gender groupings. Of the 46 male respondents, 82.6% (n = 38) indicated to be on a medical aid and 17.4% (n = 8) were not on a medical aid. Of the 214 women 87.9% (n = 188) indicated that they were on a medical aid and 12.1% (n = 26) indicated that they were not on a medical aid. This can be seen in Table 9 below.

Table 9. Gender and medical aid status cross-tabulation

Are you on a medical aid? (eg. Discovery, Medi-Help, etc) * Sex Crosstabulation

			Sex		
			Male	Female	Total
Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	Yes	Count	38	188	226
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	16.8%	83.2%	100.0%
		% within Sex	82.6%	87.9%	86.9%
		% of Total	14.6%	72.3%	86.9%
	No	Count	8	26	34
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	23.5%	76.5%	100.0%
		% within Sex	17.4%	12.1%	13.1%
		% of Total	3.1%	10.0%	13.1%
Total		Count	46	214	260
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	17.7%	82.3%	100.0%
		% within Sex	100.0%	100.0%	100.0%
		% of Total	17.7%	82.3%	100.0%

A correlation was performed to investigate a possible relationship between the following two questions: “Are you on a medical aid” and “If you were brought before a choice in a pharmacy what would you take?” There was no correlation, and therefore no relationship, between these two questions. They do not influence each other significantly, r = -.025, N = 258, p < .0005. As seen in Table 10 below.

Table 10. Correlation between Medical aid status and choice of product

Correlations

		Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	If you where brought before a choice in a pharmacy would you take
Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	Pearson Correlation	1	-.025
	Sig. (2-tailed)		.691
	N	260	258
If you where brought before a choice in a pharmacy would you take	Pearson Correlation	-.025	1
	Sig. (2-tailed)	.691	
	N	258	259

5.4.3.5 Age and medical aid status

A Chi-square test was done to establish whether there was a significant association between the person's age and being on a medical aid. The Chi-square test for independence (with Yates Continuity Correction and Fisher's Exact test) indicated no significant association between the person's age and being on a medical aid, χ^2 (1, *N* = 245) = 3.00, *p* = .05, phi = -.13. Of interest is that, from the output for the sample, in the age category 19 to 49 years (*n* = 220), 85.5% (*n* = 188) mentioned they belong to a medical aid, while 14.5% (*n* = 32) indicated that they do not belong to a medical aid. In the age category of 50 to 79 years (*n* = 25), 100% (*n* = 25) indicated that they belong to a medical aid (as seen in the Table 11 below). As found from the results of a previous Chi-square test, older respondents choose generic medication and may not be in a financial position to purchase original or more expensive medication. This may also be the case for older respondents, who are on a medical aid and who benefit from medical care and assistance as they age. As seen, all the older respondents are on medical aids.

Table 11. Age and medical aid status cross-tabulation

CHIAge1 * Are you on a medical aid? (eg. Discovery, Medi-Help, etc) Crosstabulation

			Are you on a medical aid? (eg. Discovery, Medi-Help, etc)		
			Yes	No	Total
CHIAge1	Age19to49	Count	188	32	220
		% within CHIAge1	85.5%	14.5%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	88.3%	100.0%	89.8%
		% of Total	76.7%	13.1%	89.8%
	Age50to79	Count	25	0	25
		% within CHIAge1	100.0%	.0%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	11.7%	.0%	10.2%
		% of Total	10.2%	.0%	10.2%
Total		Count	213	32	245
		% within CHIAge1	86.9%	13.1%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	100.0%	100.0%	100.0%
		% of Total	86.9%	13.1%	100.0%

5.4.3.6 Race and medical aid status

A Chi-square test was also used to establish differences, if any, between a respondent's race and belonging to a medical aid. The Chi-square test for independence (with Yates

Continuity Correction and Fisher's Exact test) indicated no significant association between the person's race and being on a medical aid, χ^2 (1, N = 260) = .90, p = .25, phi = .08. The following information was found in this Chi-square analysis. Of 243 respondents who were white, 87.7% (n = 213) had a medical aid and 12.3% (n = 30) did not. Of the combined black group, 76.5% (n = 13) mentioned that they belonged to a medical aid, while 23.5% (n = 4) mentioned that they did not. More individuals in the black group were not on a medical aid, whereas more white individuals were on a medical aid (see Table 12 below). As seen previously, more black individuals would purchase original medication and more white individuals would purchase generic medication. However, because more white individuals have a medical aid, one would suspect that these individuals purchase generic medication. This interesting finding will be discussed in the following chapter.

Table 12. Race and medical aid status cross-tabulation

NewRaceWB * Are you on a medical aid? (eg. Discovery, Medi-Help, etc) Crosstabulation

			Are you on a medical aid? (eg. Discovery, Medi-Help, etc)		
			Yes	No	Total
NewRaceWB	White	Count	213	30	243
		% within NewRaceWB	87.7%	12.3%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	94.2%	88.2%	93.5%
		% of Total	81.9%	11.5%	93.5%
	Black(Coloured and Indian)	Count	13	4	17
		% within NewRaceWB	76.5%	23.5%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	5.8%	11.8%	6.5%
		% of Total	5.0%	1.5%	6.5%
Total		Count	226	34	260
		% within NewRaceWB	86.9%	13.1%	100.0%
		% within Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	100.0%	100.0%	100.0%
		% of Total	86.9%	13.1%	100.0%

5.4.3.7 Living Standards Measure (LSM)

According to the South African Advertising Research Foundation (SAARF) (2006), the Living Standards Measure, better known as the LSM measure, has been the most widely used marketing research tool in Southern Africa. This measure divides the population into ten LSM groups, where ten is the highest and one is the lowest. This is further refined into three groupings, labelled lower, middle and upper-class. Only the middle and upper-class groupings will be used, as described later on in the analysis. The LSM is a unique means of segmenting the South African market. This measure cuts across race, income and other

dated techniques of categorizing people. Rather, it categorizes people according to their living standards using criteria such as degree of urbanisation, ownership of cars and major household appliances (Haupt, 2006).

The LSM was included to determine which market segment respondents in the study can be assigned to and to assess how their LSM status relates to their reported purchasing preference for either generic or original medication. The following results were obtained from the data gathered. The mean LSM of respondents was 2.1783. This translates to the LSM group ten which is at the upper limit of the LSM groupings. The maximum LSM of respondents was 2.84 which also translates to the LSM group ten (the upper class household) (Consumer Scope, 2009; SAARF, 2006). The minimum LSM was -0.12, equating to the LSM group five (an average middle class household) (ConsumerScope, 2009). The mode (the LSM group mostly recorded) was 2.84 and the median 2.29, both equating to a LSM of ten, again, upper class households. Thus, to conclude, the respondents that took part in this study are of an average to above average socio-economic segment of the market.

A Chi-square test was conducted to assess the relationship between LSM status and choice to purchase either original or generic medication. The Chi-square test for independence indicated a significant association between the LSM level and choice between original and generic medication, $\chi^2(4, N = 259) = 13.24$, $p = .01$, *Cramer's V* = .16.

The Chi-square test for independence also found that, of the respondents, 107 indicated that they would choose original medication when faced with the choice. This group of respondents can be broken down into the following LSM groups. 2.8% ($n = 3$) fell within the LSM combined group[3](middle class LSM), 22.4% ($n = 24$) fell within the LSM 9 group (middle-upper class LSM) and 74.8% ($n = 80$) fell within the LSM 10 group (upper class LSM).

There were also respondents that indicated they would choose generic medication if given a choice ($n = 109$). This group of respondents can be broken down into the following LSM groups. 12.8% (14) fell within the LSM combined group (middle class LSM), 23.9% ($n = 26$)

[3] The researcher combined the LSM 5, LSM 6, LSM 7 and LSM 8 categories for the reason that there were too few respondents per LSM category to draw meaningful conclusions. LSM 5 through to LSM 8 includes the middle class population ranging from lower-middle class to upper-middle class. LSM 9 and LSM 10 comprise the upper class market.

fell within the LSM 9 group (middle-upper class LSM) and 63.3% (*n* = 69) of fell within the LSM 10 group (upper class LSM).

There were also a group of respondents who were unsure which medication to choose when faced with this choice (*n* = 43). This group of respondents can be broken down into the following LSM groups. 18.6% (*n* = 8) fell within the LSM combined group (middle class LSM), 11.6% (*n* = 5) fell within the LSM 9 group (middle-upper class LSM) and 69.8% (*n* = 30) fell within the LSM 10 group (upper class LSM). Refer to Table 13 below.

In conclusion, the main findings pertaining to LSM status and medication purchases are as follows. It was found that more people in the LSM combined group (*n* = 14) would choose generic medication if they were given the choice. The same finding occurred in the LSM 9 (middle-upper class) group where 26 respondents indicated that they would choose generic medication if they were given a choice. Contrary to the findings of the LSM combined group and the LSM 9 group, 80 respondents that formed part of the LSM 10 group (upper class) indicated that they would choose original medication if given a choice. It is observed that there was a significant number of respondents within the LSM combined group (*n* = 8) and the LSM 10 group (*n* = 30) that were not sure which medication to choose.

Table 13. LSM and product purchase cross-tabulation

If you where brought before a choice in a pharmacy would you take * LSM5 to LSM10 Crosstabulation

			LSM5 to LSM10			
			LSM5, LSM6, LSM7, LSM8	LSM9	LSM10	Total
If you where brought before a choice in a pharmacy would you take	Original Medication	Count	3	24	80	107
		% within If you where brought before a choice in a pharmacy would you take	2.8%	22.4%	74.8%	100.0%
		% within LSM5 to LSM10	12.0%	43.6%	44.7%	41.3%
		% of Total	1.2%	9.3%	30.9%	41.3%
	Generic Medication	Count	14	26	69	109
		% within If you where brought before a choice in a pharmacy would you take	12.8%	23.9%	63.3%	100.0%
		% within LSM5 to LSM10	56.0%	47.3%	38.5%	42.1%
		% of Total	5.4%	10.0%	26.6%	42.1%
	Not Sure	Count	8	5	30	43
		% within If you where brought before a choice in a pharmacy would you take	18.6%	11.6%	69.8%	100.0%
		% within LSM5 to LSM10	32.0%	9.1%	16.8%	16.6%
		% of Total	3.1%	1.9%	11.6%	16.6%
Total		Count	25	55	179	259
		% within If you where brought before a choice in a pharmacy would you take	9.7%	21.2%	69.1%	100.0%
		% within LSM5 to LSM10	100.0%	100.0%	100.0%	100.0%
		% of Total	9.7%	21.2%	69.1%	100.0%

Before moving on to the parametric statistics it is necessary to summarise the main findings presented in the non-parametric statistics section. It was found that Chi-square analyses did not yield any significant results for reported choice to purchase either generic medication or original medication between any of the demographic groups. The only variable that demonstrated a significant result was LSM status. Despite the results, the analysis did point to some interesting differences. Between the genders, more females than males will purchase generic medication if given a choice. When assessing age and choice to purchase generic or original medication, older individuals have a higher likelihood of purchasing generic medication than original medication. In younger individuals, there was only a difference of one percent between choosing the two products. Where race is concerned, more white individuals tend to prefer generic over original medication, while more Black individuals prefer original medication above generics.

The Chi-square analysis yielded a significant result, where more individuals in the LSM combined group show preference for generic medication. Respondents in the LSM 9 group prefer generic medication. Lastly, more individuals in the LSM 10 group would purchase

original medication. The implications of these results will be explored in more depth in the next chapter.

5.5 Parametric Statistics

5.5.1 Factor analysis

According to Pallant (2010), factor analysis is a data reduction technique that takes a large set of variables and tries to find a way to reduce or summarize the data by using a smaller set of factors or components. Factor analysis has a number of different uses. It is used especially by researchers involved in the development of tests and scales. Factor analysis was deemed useful in this study since it allows for the reduction of a large number of associated variables to a more manageable number, prior to use in other analyses, such as multiple regression or MANOVA's (Pallant 2010).

Just to review, in this factor analysis, the Exploratory Factor Analysis (EFA) approach was used and Principle Component Analysis (PCA) was employed as technique. Pallant (2010) mentions that it is used for exploration in the early stages of research, where information is gathered about the possible relationships that form among variables. What follows are the results obtained from this factor analysis.

The 83 items in the questionnaire were subjected to PCA using SPSS Version 17. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix showed the presence of coefficients of .30 and above. The Kaiser-Meyer-Oklin value was .90 thereby exceeding the recommended value of .60. Bartlett's Test of Sphericity reached statistical significance supporting the factorability of the correlation matrix. Principle component analysis revealed the presence of 19 components with eigenvalues exceeding one. It was decided to only to look at the first six components exceeding eigenvalues of two, explaining 27.8%, 6.9%, 4.9%, 3.8%, 3.0%, 2.5% of the variance. Another important value is the Kaiser's criterion or the eigenvalue rule. By using this rule, only factors with eigenvalues of 1.0 or more are retained for further analysis. The eigenvalue of a factor represents the amount of total variance explained by that factor. This value has been criticised for its ability to retain too many factors (Pallant, 2010). It was for this reason that only factors with eigenvalues of two and above were retained in the first order factor analysis. Otherwise, there would have been a vast amount of factors that would have been retained if the eigenvalues of one and above were selected. This can also be seen by the total variance explained in the table below.

An inspection of the screeplot (Figure 2) shows a clear break after the sixth component. The six component solution explained a total of 48.84% of the variance, with component one contributing 27.8%, component two contributing 6.9%, component three contributing 4.9%, component four contributing 3.8%, component five contributing 3.0% and component six contributing 2.5%. To aid in the interpretation, a Varimax rotation was performed. According to Pallant (2010), a scree test is a graph that plots each of the eigenvalues of the factors. This plot can be inspected to determine the point at which the shape of the curve changes direction to become more horizontal. It is recommended that all the factors above the elbow, or the break, in the plot should be retained, as these factors contribute most to the explanation of the variance of the dataset.

According to Field (2009), Varimax rotation is part of the orthogonal rotation method that attempts to maximize the dispersion of loadings within factors. It tries to load a smaller number of variables highly onto each factor, resulting in a more interpretable cluster of factors. The Varimax rotation method is a good general approach that simplifies the interpretation of the results. The results of the Varimax rotation can be found in the rotated component matrix table, containing the same information as the component matrix except that values are calculated after rotation (Field, 2009).

Table 14. Total variance explained of the first order factor analysis

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	23.07309131	27.79890519	27.79890519	23.07309131	27.79890519	27.79890519	17.90759336	21.57541369	21.57541369
2	5.717905318	6.889042551	34.68794774	5.717905318	6.889042551	34.68794774	6.589348645	7.938974271	29.51438796
3	4.079500104	4.915060367	39.60300811	4.079500104	4.915060367	39.60300811	6.559248202	7.902708677	37.41709663
4	3.163039954	3.81089151	43.41389962	3.163039954	3.81089151	43.41389962	4.123158265	4.967660561	42.38475719
5	2.469744793	2.975596136	46.38949575	2.469744793	2.975596136	46.38949575	3.185040309	3.837397963	46.22215516
6	2.035463276	2.452365393	48.84186114	2.035463276	2.452365393	48.84186114	2.174355969	2.619705987	48.84186114
7	1.776516483	2.140381304	50.98224245						
8	1.672311523	2.01483316	52.99707561						
9	1.610538132	1.940407387	54.937483						
10	1.451179895	1.748409512	56.68589251						
11	1.444664062	1.74055911	58.42645162						
12	1.350485028	1.627090395	60.05354201						
13	1.321840568	1.592578997	61.64612101						
14	1.285726054	1.549067535	63.19518855						
15	1.227223984	1.478583113	64.67377166						
16	1.186537269	1.429562975	66.10333464						
17	1.106804966	1.333499959	67.43683459						
18	1.094166145	1.318272464	68.75510706						
19	1.056064076	1.272366356	70.02747341						
20	0.996940987	1.201133719	71.22860713						
21	0.940260944	1.13284451	72.36145164						
22	0.893133989	1.076065047	73.43751669						

On further investigation, a vast difference was found between the first and second eigenvalue. This showed that there were many items loading onto the first component. It was therefore deemed necessary to do a second order factor analysis on the first component. The results can be seen clearly in the scree plot (Fig. 2) below and in the Table 14 above.

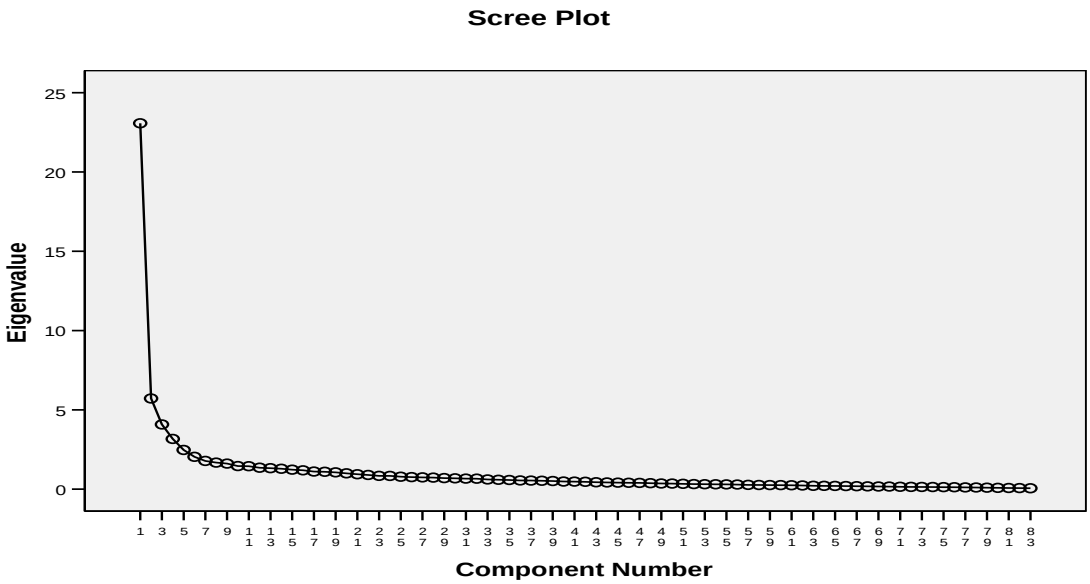

Fig.2 Scree Plot: First order factor analysis

Of the original 83 items, 36 items clustered together on the first component. Therefore, a second order factor analysis was done on just the first component alone. The 36 items were subjected to PCA using SPSS Version 17. The data were, again, assessed for factor analysis suitability. The Kaiser-Meyer-Oklin value was .95, exceeding the recommended value of .6. Bartlett's Test of Sphericity reached statistical significance thereby supporting the factorability of the correlation matrix. Principle component analysis revealed the presence of four components with eigenvalues exceeding one, explaining 49.0%, 4.7%, 3.9%, and 3.4% of the variances. The four component solution explained a total of 61.1% of the variance, with component one contributing 49.0%, component two contributing 4.7%, component three contributing 3.9% and component four contributing 3.5%. To aid in the interpretation, Varimax rotation was performed. The results above can also be found in Table 15 and Figure 3 below.

Table 15. Total variance explained of the second order factor analysis

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.963	47.118	47.118	16.963	47.118	47.118	7.789	21.636	21.636
2	1.635	4.541	51.659	1.635	4.541	51.659	6.309	17.524	39.161
3	1.533	4.257	55.916	1.533	4.257	55.916	3.916	10.877	50.038
4	1.318	3.661	59.578	1.318	3.661	59.578	3.434	9.540	59.578
5	1.081	3.003	62.581						
6	.931	2.586	65.166						
7	.921	2.559	67.725						
8	.828	2.299	70.025						
9	.778	2.161	72.186						
10	.745	2.069	74.254						
11	.710	1.972	76.227						
12	.692	1.922	78.149						
13	.620	1.723	79.871						
14	.587	1.629	81.501						
15	.552	1.532	83.033						
16	.511	1.420	84.453						
17	.485	1.346	85.799						
18	.459	1.275	87.075						
19	.431	1.197	88.272						
20	.410	1.139	89.411						
21	.378	1.050	90.461						
22	.368	1.022	91.484						
23	.340	.945	92.429						
24	.312	.867	93.296						
25	.285	.793	94.089						
26	.276	.765	94.854						
27	.252	.701	95.556						
28	.245	.680	96.235						
29	.232	.644	96.879						
30	.208	.577	97.456						
31	.202	.561	98.016						
32	.180	.501	98.517						
33	.165	.458	98.975						
34	.156	.432	99.407						
35	.116	.321	99.728						
36	.098	.272	100.000						

Extraction Method: Principal Component Analysis.

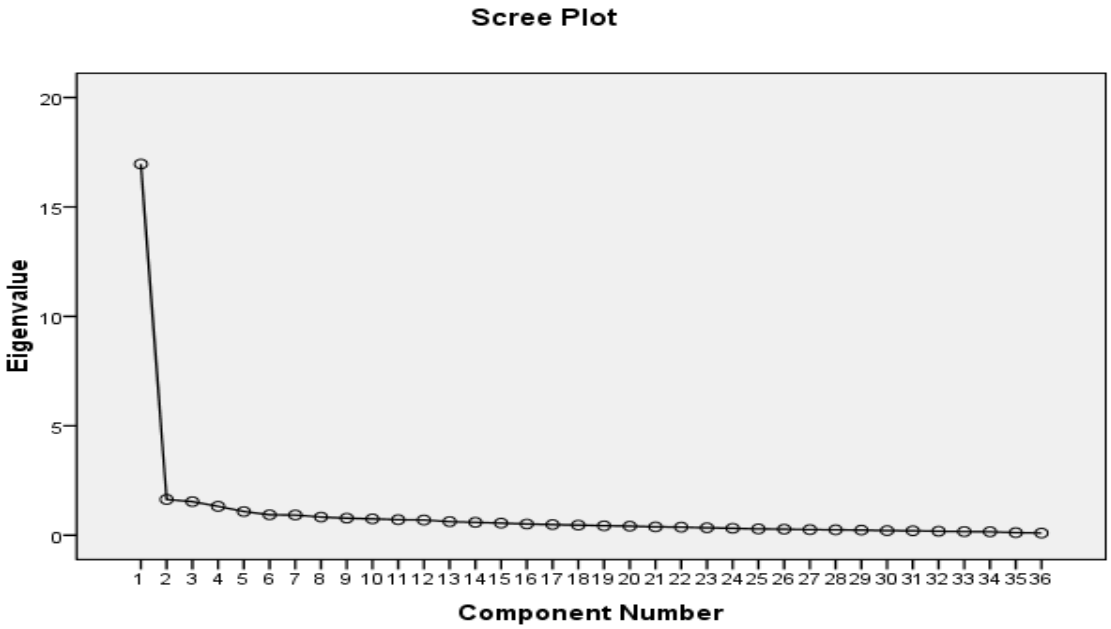

Fig.3 Scree Plot: Second order factor analysis

The first and second PCA were put together to form a nine factor design which includes the following factors:

- Consumer Ideas about Generic Medication
- Pro Branded Medication
- Consumer Ideas of Medical Professionals Prescribing
- Generic Medication Effectiveness
- Consumer Purchase Cheaper Products
- Consumer Ideas on the Quality of Generic medication
- Prescriptions
- Consumer Recommendations
- Variable Mix (three variables loaded onto this variable, however, as discussed later, these variables were not considered relevant for statistical purposes and were left out of the analysis).

These nine factors were used for further analysis, as described in the following section of the chapter.

5.5.2 MANOVA

Multivariate analysis of variance (MANOVA) is an extension of the analysis of variance (ANOVA) for use when you have more than one dependent variable. ANOVA is so called because it compares the variance between the different groups with the variability within each of the groups (Pallant, 2010). These dependent variables should be related in some way, or there should be some conceptual reason for considering them together. MANOVA compares the groups and indicates whether the mean differences between the groups, on the combination of dependent variables, have occurred by chance (Pallant, 2010).

Field (2009) mentions that an ANOVA can only be used in situations where there is one dependent variable (also known as a univariate test). The MANOVA is designed to test a number of dependent variables (also known as a multivariate test). A MANOVA was chosen because there was more than one dependent variable, and would not have been practical to use a multiple ANOVA test due to the increased likelihood of a Type one error. The MANOVA helps control for Type one errors (Field, 2009; Pallant, 2010).

A one-way, between-groups MANOVA was performed to investigate gender and race differences pertaining to consumer attitudes towards medication. Gender and race were included in this MANOVA due to the fact that, while there was no significant association between gender and choice of medication and no significant association between race and medication choice, there were interesting results uncovered by the Chi-square analysis. As discussed in the Chi-square section, more women choose generic medication than men and more Black respondents choose original medication than White respondents. These interesting results were explored further, by using a MANOVA, to determine whether there were statistically significant results between these identified variables.

Out of the original nine factors, only eight factors were used. This was due to the ninth factor only containing three items from different question areas. It was felt that this factor would not make a valuable contribution towards the study. Therefore, analysis was only conducted on the eight remaining factors. These eight factors were defined as dependent variables. The eight factors include:

- Consumer Ideas about Generic Medication
- Pro Branded Medication
- Consumer Ideas of Medical Professionals Prescribing
- Generic Medication Effectiveness
- Consumers Purchase Cheaper Products

- Consumer Ideas on Quality of Generic Medication
- Prescriptions
- Consumer Recommendations

The independent variables in the MANOVA were gender and race. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicolinearity. No serious violations were noted. There were no statistically significant differences between males and females on the combined dependent variables, $F(8, 251) = .91$, $p = .51$; Wilks' Lambda .97; partial eta squared = .03. There were also no significant findings using a Bonferroni adjusted alpha level of .006.

With regards to race, there were also no significant differences between the White and Black respondents on the combined dependent variables, $F(8, 251) = 1.34$, $p = .20$; Wilks' Lambda .96; partial eta squared = .04. There were also no significant findings using the Bonferroni adjusted alpha level of .006.

5.5.3 Regression

Multiple regression analysis was also conducted to gain insight into the workings of the questionnaire. Three factors were identified that could be explored in more detail in later studies (as explained in the following chapter under limitations and recommendations). As explained above, a number of factors were identified by using factor analysis. Of the nine factors produced by the factor analysis, only eight usable factors were introduced into the hierarchical regression analysis. The analysis was conducted to determine which items need to be focused on when designing and refining the current questionnaire looking at consumer attitudes.

Rubin (2010) claims that, to predict specific future values for use in practice, regression analysis should be used. Both Rubin (2010) and Field (2009) mention that regression analysis forms part of correlation analysis that utilizes an equation to enable a prediction of the value of one variable based on the value of another variable. Several predictor variables then equate to a multiple regression. There are three major types of multiple regression. These three types include standard regression, hierarchical or sequential regression and stepwise regression (Field, 2009; Pallant, 2010; Rubin, 2010).

Hierarchical regression was used in this study. According to Pallant (2010), when hierarchical regression is used, the independent variables are entered into the equation in the order specified by the researcher. Unfortunately, due to the current study being the first of its kind, and the fact that there is no theory on which to base the study, the factors were entered into the hierarchical analysis from an understanding of the important factors. Variables, or sets, are entered in steps with each independent variable being assessed in terms of its addition to the prediction of the dependent variable after the other variables have been controlled for. According to Field (2009), in hierarchical regression, predictors are selected and entered into the model in an order based on what the researcher decides.

Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicolinearity and homoscedasticity. The following three, of the eight, factors were found to be statistically significant. Pro Branded Medication, entered at Step one, explained 33.6% of the variance in consumer choice to buy original or generic medication. Consumer Ideas of Generic medication, entered at Step two, explained 37.7% of the variance in consumer choice to buy original or generic medication. After the entry of Consumers Purchase Cheaper Products, at Step three, the total variance explained by the model was 41%, $F(3, 255) = 58.82$, $p < .0005$. The control measures explained an additional 3.2% of the variance in choosing behaviour, controlling for Pro Branded Medication and Consumer Ideas of Generic Medication, the R squared changed to .03, $F(1, 255) = 13.76$, $p < .001$. In the final model, all measures were found to be statistically significant. Pro Branded Medication had the highest beta value ($\beta = -.94$, $p < .001$), followed by Consumer Ideas of Generic Medication ($\beta = .56$) and lastly, Consumers Purchase Cheaper Products ($\beta = .23$, $p < .001$). This can be seen in Table 16 and Table 17 provided below.

It appears that consumer choice for branded or generic medication is best predicted by their preference towards a branded product and distancing of generic product. Consumer choice is also influenced by their ideas of generic medication and how these ideas influence purchasing behaviour. Consumer choices can also be influenced by the purchase of cheaper products.

Table 16. Regression analysis model summary

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.580[a]	.336	.334	.403	.336	130.108	1	257	.000
2	.614[b]	.377	.372	.391	.041	16.844	1	256	.000
3	.640[c]	.409	.402	.381	.032	13.760	1	255	.000

a. Predictors: (Constant), Consumers Pro Branded/Original Producuts

b. Predictors: (Constant), Consumers Pro Branded/Original Producuts, Consumrers Ideas of Generic medication

c. Predictors: (Constant), Consumers Pro Branded/Original Producuts, Consumrers Ideas of Generic medication, Consumers Purchase Cheaper Products

d. Dependent Variable: RegDumVar1

Table 17. Regression analysis coffients significance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.471	.096		15.315	.000					
	Consumers Pro Branded/Original Producuts	-.409	.036	-.580	-11.406	.000	-.580	-.580	-.580	1.000	1.000
2	(Constant)	1.731	.113		15.353	.000					
	Consumers Pro Branded/Original Producuts	-.685	.076	-.971	-9.042	.000	-.580	-.492	-.446	.211	4.744
	Consumrers Ideas of Generic medication	.359	.087	.441	4.104	.000	-.422	.248	.202	.211	4.744
3	(Constant)	1.178	.185		6.352	.000					
	Consumers Pro Branded/Original Producuts	-.664	.074	-.942	-8.962	.000	-.580	-.489	-.431	.210	4.770
	Consumrers Ideas of Generic medication	.453	.089	.557	5.091	.000	-.422	.304	.245	.194	5.167
	Consumers Purchase Cheaper Products	.177	.048	.229	3.710	.000	.428	.226	.179	.610	1.638

a. Dependent Variable: RegDumVar1

In conclusion, this parametric statistic section provides a number of valuable results. In the factor analysis, the questionnaire was condensed into a more manageable format and eight workable factors were identified. The parametric test that followed, a MANOVA, explored if there were any significant differences between gender and race and purchasing certain products. It was found that there were no significant differences in purchasing behaviour within these two variables. In the last parametric statistical procedure, factors were explored to determine if there were any individual factors that need to be focused on in future research. It was found that the following three factors need to be further explored, namely, Pro Branded Medication, Consumer Ideas of Generic Medication and Consumers Purchase Cheaper Products.

In the following chapter, these results will be explained in depth, linking them with prior research on the topic and incorporating the theoretical paradigm utilised, namely the ELM.

Recommendations will be provided and suggestions will be made for possible future research in this area and the refinement of the questionnaire for wider use.

Chapter 6 – Discussion, Recommendations and Conclusion

6.1 Introduction

The outcomes of this study will be discussed and compared to findings of previous research done on the same topic. The theory, namely the ELM (as discussed in Chapter 3), will help guide the discussion of this integrative chapter. A discussion will follow regarding the limitations of the study, followed by recommendations for future studies, ending with a conclusion.

6.2 Overview

A brief summary of the findings will be outlined and an in depth discussion will follow. To conduct this explorative study, a measurement instrument was devised to assess consumer attitudes towards generic medication. The questions asked included aspects such as, how consumers perceive pricing, their perception of the efficacy of generic medication and how it compares to the original product. In another instance, one of the questions asked consumers whether they would purchase generic or original medication when given a choice in a pharmacy. This particular question proved valuable, resulting in its use for most of the non-parametric statistical analyses. Furthermore, parametric statistics were used to condense the questionnaire into a more workable format via the use of factor analysis. Once this was done, the focus fell on the use of MANOVA's to further explore and explain the differences found with the use of Chi-square analysis between gender and race. Regression analysis was the last parametric statistic used to determine which factors to focus on in future research within this field of interest.

Within the following section, the demographic results will be explored.

6.3 Demographics

Just to review, the sample used for this study comprised 266 participants. The mean age of the group was 29.67 years and there were a total of 47 males and 219 females. The racial identification of the sample was predominantly White (*n* = 248) followed by a combined group of Black, Coloured and Indian participants (*n* = 18). The majority were on a medical aid, most of the participants knew what generic medication was and a large percentage had used generic medication before.

6.4 Descriptive Information

The main findings pertaining to consumer attitudes towards generic medication include:

6.4.1 Attitudes regarding efficacy of generic medication

In this particular sample, more than half (54.8%) prefer original medication, a large percentage (88.9%) believe there is a place for generic medication and that generic medication is effective. The majority (95%) indicated they would purchase generic medication if it is just as effective as the original. It was also emphasized that the quality of medication influences its effectiveness.

The results of this study show that the consumer feels generic medication is just as effective, whereas, in other studies, the consumer has felt original medication is more effective than generic medication (Kjoenniksen et al., 2006; Shrank et al., 2009a). As mentioned in chapter 2, there is a paucity of local South African research conducted on the average consumers' understand of generic medication's effectiveness compared to the original version. Verster et al. (1998) indicated that the quality and efficacy of generic substitution should be examined as the medication is seen to be equivalent to the original product. Based on the findings of this study, it appears that consumers generally hold favourable attitudes towards the efficacy of generic medication, despite the fact that slightly more than half indicated preference for original medication.

6.4.2 Recommendations by physicians, pharmacists and friends / family

More (91.2% compared to 84.3%) respondents claimed they trust their physician over a pharmacist when given recommendations for a generic product. However, a large percentage would purchase generics if recommended by either a physician or pharmacist. More than half (57.9%) would purchase generic medication if recommended by friends, but they would trust family members recommendations (68.6%) over friends. More than half would recommend generics to friends/family due to their price, efficacy and quality.

It can be seen that respondents have a higher opinion of the recommendations of medical professionals than those of family or friends. Respondents view the physician's opinion higher than pharmacists, corresponding to the findings by Verster et al. (1998). The results of this explorative study further correspond to other studies outlined in Chapter 2 that relate to recommendations given by medical professionals, friends and family. It is said that physician communication's, and their subsequent recommendations, play an important role

in purchasing decisions made by the consumer. Poor communication skills have been mentioned as a problem area in the medical field. It was also found that, in-store promotions, price, family/friend recommendations and advertisements play a significant role in purchasing decisions made by the consumer (Belcher, Fried, Agostini, & Tinetti, 2006; Kersnik & Peklar, 2006; Ladha, 2007; Patel, Coffman, Tseng, Clark & Cabana, 2009; Rodriguez-Calvillo, 2011; Shrank et al., 2009b).

Considering these results, it is interesting that consumers have a higher regard for their physician's recommendations than that of the pharmacist. This relates to the ELM theory explained in chapter 3. According to Postulate 3C (Trustworthiness), the consumer prefers to obtain information from a credible source (Bagozzi et al., 2007) who they trust the most, in this case, the physician. It is not that consumers do not trust pharmacist recommendations, however, they would more likely purchase medication recommended by a person who, for example, gave them a medical examination. This also links to Postulate 1 (Holding correct attitudes) (Petty & Cacioppo, 1986), which states that consumers prefer to hold accurate attitudes towards certain products. Trusting the judgement of a physician, for example, would most likely lead to more accurate attitudes towards medication. Postulate 4C (Personal relevance) and 4D (Personal responsibility) (Petty & Cacioppo, 1986) might also play a role. If a consumer is conscious of his/her health, and if this information from the physician is personally relevant to them, then they would most likely trust the advice of the physician.

6.4.3 Respondents' willingness to ask for cheaper alternative medication

Only a small percentage (32.7%) asked, out of their own, for generic medication when at a physician or in a pharmacy.

It can be seen that, the consumer either trusts the physician completely when at their surgery or are unsure of the different medications that are available. These results, pertaining to requesting cheaper medication, correlate with the study conducted by Shrank et al. (2009a). They found that a third of their sample reported asking their physician to substitute their medication for a generic format. In this study, a third (32.7%) asked their physician to prescribe a generic alternative. Shrank et al. (2009a) mention that the low-level of communication between consumer and medical personnel is not as a result of discomfort. More than half their respondents felt comfortable asking for a substitution. Relating this result to the ELM, Postulate 3C (Trustworthiness) (Bagozzi et al., 2007) might be at play again. The consumer may trust the physician completely, not deeming it necessary to ask

for cheaper alternatives. The reasoning behind this pertaining to the physician knows best attitude.

6.4.4 Pricing of generic and original medication

With regards to pricing, more than half the respondents (61.3%) would purchase generic medication if it is cheaper than the original. Less than half (39.9%) believed generic medication should be bought in order to save money. A very high percentage (85.1%) would pay a higher price for medication knowing that it would work effectively.

A common theme seen in the results was that generic medication is a viable choice if it leads to saving money on medication. There are a large percentage of consumers who do not care to pay more for medication, just as long as they know the cheaper medication works as effectively. A number of studies have listed savings on medication as central to decision making when choosing between different kinds of medication (Dalen et al., 2011; Heikkila et al., 2007; Lundin, 2000; Nuss, Taylor, De Hert and Hummer, 2004; Rizzo & Zeckhauser, 2009; Rodriguez-Calvillo, Lana, Cueto, Markham & Lopez, 2011). Similar results were found in this explorative study where, more than half the respondents would choose generic medication if they save money. Thus, while efficacy remains a concern, saving money is also important, a finding that agrees with most other studies reviewed in Chapter 2.

Looking at the results, the ELM Postulate 3C (Trustworthiness) (Bagozzi et al., 2007) might again have an influence on what the consumer buys. If the physician communicates effectively to the consumer that generic medication is, for example, just as effective as the original and leads to saving money, the consumer might follow the physician's advice. Thus, effective communication, in part, would lead to the consumer buying a product that would save him/her money while being effective at the same time.

6.4.5 Respondents' ideas surrounding prescriptions and product branding

More than half the respondents (64.4%) know that a valid physician's prescription is required to by medication, including generic medication. There are those who think it is possible to buy generic medication without a valid prescription. Branding of medication also plays a leading role in the purchasing of generic medication, as indicated by more than half the respondents (69.3%).

This finding supports the idea that brand and brand loyalty play a crucial role in attitudes consumers hold towards certain medication (Ladha, 2007). In this sample, respondents had clear knowledge that only a valid physician's script for generic medication can result in the purchase of medication, and that medication brand plays a crucial role in the purchase thereof. With regard to branding, Postulate 6A (Prior knowledge) (Petty & Cacioppo, 1986) might play a role. This postulate indicates that before a consumer can hold a positive or negative attitude towards a product, they first need adequate prior knowledge (Petty & Cacioppo, 1986). The consumer may have heard of a particular generic medication in conversation with a friend or family member, seen it advertised or talked about in a pharmacy and is eventually recommended it by the physician. This consumer trusts (Postulate 3C) the physician and purchases the product in a pharmacy. The consumer had prior knowledge pertaining to the medication as a result of friends/family recommendations, seen it in a pharmacy and then had it prescribed by a physician, resulting in positive attitudes towards the product.

6.5 Non-parametric Tests

In the following discussion, the focus will be on the non-parametric statistic results. These non-parametric statistics comprised six Chi-square tests.

6.5.1 Gender

6.5.1.1 Gender and medication choice

As previously mentioned, a Chi-square test for independence indicated no significant association between gender and the choice to purchase generic or original medication, χ^2 (2, *N* = 259) = .98, p = .61, Cramer's V = .061. By conducting this analysis, there was no significant association between the genders and purchasing behaviour, however, some interesting information did emerge out of this analysis. Table 18 below summarises the outcome of this Chi-square analysis:

Table 18 Summary of gender and medication choice

Medication Type	Male	Female	Total
Original Medication	*21 (46.7%)*	*86 (40.2%)*	***107***
Generic Medication	*16 (35.6%)*	*93 (43.5%)*	***109***
Not Sure	*8 (17.8%)*	*35 (16.4%)*	***43***
Total	***45***	***214***	***259***

The findings of this study correspond to that of Yelkur and Capella (2004) (mentioned in Chapter 2). They mention that there is a greater awareness in female consumers for generic medication and the female consumer also believes generic medication offers greater value.

Comparing males and females, more males purchase original medication and more females purchase generic medication. Males are not sure what to purchase. As mentioned by Shrank et al. (2009), females claim that generics offer greater value. This supports the general paradigm that women are the nurturers and provide for their families wellbeing. They, therefore, have a sense of what products are good to purchase on a budget. Men's decisions to choose original medication might be explained with the help of the ELM, Postulate 1 (Holding correct attitudes) (Petty & Cacioppo, 1986) which stimulates that one wants to hold correct attitudes. Choosing a product that works is the best option for men because they might feel it is the tried and tested product. As seen in Section 6.4 above, respondents would pay more for a product that works effectively. One should, however, also take into account that there were many men who were uncertain of which product to choose. This may be because men trust their physician or pharmacist's opinion and would not ask for a generic or cheaper alternative (especially considering the small percentage who would ask out of their own for a cheaper alternative). Postulate 6A (Prior knowledge) (Petty & Cacioppo, 1986) may also play a role in purchasing behaviour. If an individual had previous knowledge and experience with generic medication, they would more likely purchase generic medication and more likely ask their physician or pharmacist to recommend it. This might explain that, because males are uncertain which medication to choose, they just take whatever medication is prescribed by the physician or recommended by a pharmacist without questioning or considering something different.

Another variable that plays a role in choosing a medication is the person's medical aid (as explained in Chapter 2). Certain medical aids will pay up to 100% of the medical bill for generic medication (Discovery Health, 2008; Medihelp, 2008). Other studies have indicated that medical insurance companies encourage the use of generic medication because it is cheaper than the original product (Lofgren, 2002). The following results were found pertaining to gender and medical aid status.

6.5.1.2 Gender and medical aid status

A second Chi-square test for independence (with Yates Continuity Correction) indicated no significant association between gender and medical aid status, χ^2 (1, *N* = 260) = .51, p = .47,

phi = -.06. In this analysis there were no significant associations between gender and being on a medical aid. However, the following information was seen as important:

Table 19. Summary of gender and medical aid status

Medical Aid Status	Male	Female	Total
Yes	38 (82.6%)	188 (87.9%)	***226***
No	8 (17.4%)	26 (12.1%)	***34***
Total	***46***	***214***	***260***

As shown in Table 19, most respondents did have a medical aid. There were only 34 respondents, 8 males and 26 females, who did not have a medical aid. A correlation was done to establish the relationship between medical aid status and choosing different medications if given a choice. The results, as shown in Chapter 5, indicate that there was no correlation between these two variables (r = -.025, n = 258, p < .0005.). Therefore, this extraneous variable, namely being on a medical aid, was shown not to have an influence on the decision to choose specific medications.

6.5.2 Age

6.5.2.1 Age category and medication choice

A Chi-square test of independence showed no significant association between the person's age and what product they would purchase if given a choice, X^2 (2, N = 245) = 1.87, p = .39, phi = .09. By conducting this analysis, no significant association was found between the age of a person and what product they would choose to purchase. However, the following interesting results did emerge out of this analysis.

Table 20. Summary of age category and medication choice

Medication Type	Age Category 19-49	Age Category 50-79	Total
Original Medication	90 (40.9%)	10 (40%)	***100***
Generic Medication	91 (41.4%)	13 (52%)	***104***
Not Sure	39 (17.7%)	2 (8%)	***41***
Total	***220***	***25***	***245***

As shown in Table 20, more respondents in the older age category were inclined to choose generic medication. The younger group showed no significant difference between choosing

different medications. However, there was a big contrast between the younger and older group. There was a similar percentage of young participants who would purchase generic and original mediation. However, the older age group was more inclined to choose generic medication. These findings correspond to those found by Yelkur and Capella (2004) where elderly consumers strongly favour generic medication. They also mention that, because of this positive outlook on generic medication, the elderly consumer will most likely be the ideal person to repeatedly purchase generic medication. One reason for this may be found ELM Postulate 6A (Prior knowledge) (Petty & Cacioppo, 1986). These consumers may have already had prior experiences with medication, and certainly generic medication, at one time or another. This may be a good reason for choosing generic medication as a result of these prior encounters with these kinds of medications. They may also choose generic medication because it is the cheaper product having economic implications. Figueiras et al. (2009) indicate that older respondents show stronger beliefs of similarity between original and generic medication.

As seen from the results of the younger age group, these individuals display more or less equal choice in selecting either generic or original medication. These findings may have been as a result of the vast undergraduate student sample. Students also have economic pressures, possibly playing a role in their choice to purchase generic medication. Some students are more "strapped for cash" and may choose generic medication from this economic standpoint. However, as shown by other research (Tootelian et al.,1988), students believe they consume more original than generic medication because of the view that original medication has potentially less adverse effects and the most value for money. Another aspect to be kept in mind is that that branding of medications play a significant role. People emphasize the branding of a product as an essential consideration in making a choice (Ladha, 2007). Another possible reason for the lack of difference in the younger group might be as a result of physician prescription for generic medication to younger consumers (Dalen et al., 2011; Iosifescu et al., 2008).

In this explorative study respondents' age was compared to their medical aid status and the following was found.

6.5.2.2 Age and medical aid status

The Chi-square test for independence (with Yates Continuity Correction and Fisher's Exact test) indicated no significant association between the person's age and being on a medical aid, χ^2 (1, *N* = 245) = 3.00, p = .05, phi = -.13. By conducting this analysis, no significant

association was found between the age of a person and medical aid status. However the following information did emerge from this analysis.

Table 21. Summary of age and medical aid status

Medical Aid Status	Age Category 19-49	Age Category 50-79	Total
Yes	188 (85.5%)	25 (100%)	***213***
No	32 (14.5%)	0	***32***
Total	***220***	***25***	***245***

As shown in Table 21, in the age group 19 to 49, 85.5% of respondents were on a medical aid, and in the 50 to 79 year age group, 100% of respondents were on a medical aid. The younger group may not be on medical aid because they are still studying and might be covered by their parents' medical aid. Those that are on medical aid may be working youth and they may be on their work medical scheme. The elderly are on medical aid because as they grow older, their need for medical attention will increase. As discussed in the second chapter, medical aid companies pay 100% of the medical aid bill if generic medication is purchased (Discovery Health, 2008; Medihelp, 2008). This may also be a contributing factor for elderly positive attitudes towards generic medication. They save on medication that they need to take regularly, for example blood pressure medication and cholesterol medication. As described in Section 6.5.1, there is no correlation between being on a medical aid and being influenced by this variable in choosing a medication type.

6.5.3 Race

6.5.3.1 Race and medication choice

A Chi-square test of independence indicated no significant association between race and choosing a medication, χ^2 (2, *N* = 259) = 5.00, p = .08, phi = .14. It can be seen that by conducting this analysis, there was no significant association between the race of a person and their choice of medication. However, interesting information did emerge from this analysis.

Table 22. Summary of race and medication choice

Medication Type	White	Black	Total
Original Medication	96 (39.7%)	11 (64.7%)	***107***
Generic Medication	106 (43.8%)	3 (17.6%)	***109***
Not Sure	40 (16.5%)	3 (17.6%)	***43***
Total	***242***	***17***	***259***

Looking at the information provided in Table 22, of White respondents, the majority (*n* = 106) would purchase generic medication if given the choice. Of interest, the majority of Black respondents (*n* = 11) would purchase original medication if given the choice. There were a couple of White respondents (*n* = 40) that were unsure which medication they would choose, and a few (*n* = 3) Black respondents that were unsure.

There is a definite discrepancy between White and Black participants preference for purchasing generic or original medication. It is clear that White participants are in favour of generic medication, whereas Black participants are in favour of original medication. In the Black group, 17.6% use generic medication whereas the same percentage of Black respondents were not sure which medication to purchase. This discrepancy between race categories is very interesting. Unfortunately, due to the paucity of research regarding race and purchasing behaviour, no comparisons can be drawn with prior research. The results of this study can be compared, in some part, to the study conducted by Huang et al. (2009) where, African American and Latin individuals were found to be concerned about medication side-effects. As seen in Section 6.4 above, respondents would rather purchase a product that works effectively and may consider choosing generic medication, if shown to be as effective. One can only assume that Black respondents would prefer a product that works effectively and has been tried and tested explaining why such a large percentage would choose the original product. Looking at the ELM, Postulate 1 (Holding correct attitudes) and Postulate 3C (Trustworthiness) (Petty & Cacioppo, 1986) may play a role. The Black consumer might put more trust in original medication because it is the tried and tested product, and would be more apprehensive about choosing the generic product. This may be a valuable area to focus on in future research. Exploration of this aspect went further to establish how many White and Black respondents are on a medical aid. The following information was found.

6.5.3.2 Race and medical aid status

The Chi-square test for independence (with Yates Continuity Correction and Fisher's Exact test) indicated no significant association between race and being on a medical aid χ^2 (1, *N* = 260) = .90, p = .25, phi = .08. By conducting this analysis, no significant association between a person's race and being on a medical aid was found. However, some interesting information did emerge from this analysis.

Table 23. Summary of race and medical aid status

Medical Aid Status	White	Black	Total
Yes	213 (87.7%)	13 (76.5%)	***226***
No	30 (12.3%)	4 (23.5%)	***34***
Total	***243***	***17***	***260***

As seen in Table 23, a large percentage of White and Black respondents were on a medical aid and only a small number (n = 34) of respondents were not. As mentioned previously, being on a medical aid does not correlate with medication choice. Personal factors might play a role in choosing a certain type of medication. This variable would be an ideal variable to explore in future studies.

6.5.4 LSM non-parametric test results

As mentioned previously, a living standards measure (LSM) was used to assess which market segments were represented in the sample. This measure is a widely used measure in the industry to assess socio-economic status (Truter, 2007).

In the previous chapter it was mentioned that the average household represented in this study via the LSM measurement is an "average to above average" household. The population represented in the study is a LSM of 5 to 10. A LSM of 5 is average and a LSM of 10 is above average in the market segment. Again, it would have been to the advantage of this study to include all LSM market segments to get a clearer picture of what preferences there were towards medication, be it generic or original medication, and what group of individuals prefer which type of medication. One should bear in mind that this study was explorative in nature, used to determine individual preferences regarding medication.

In keeping with the explorative analysis, another Chi-square analysis was done to determine the following information. A Chi-square test for independence indicated a significant association between the LSM level and choosing between original and generic medication when given a choice in a pharmacy, $\chi^2(4, N = 259) = 13.24$, $p = .01$, *Cramer's V* = .16.

Table 24. Summary of LSM grouping and medication choice

Medication Type	LSM Combined	LSM 9	LSM 10	Total
Original Medication	3 (2.8%)	24 (22.4%)	80 (74.8%)	***107***
Generic Medication	14 (12.8%)	26 (23.9%)	69 (63.3%)	***109***
Not Sure	8 (18.6%)	5 (11.6%)	30 (69.8%)	***43***
Total	***25***	***55***	***179***	***259***

As seen in Table 24, the LSM combined group would purchase generic medication, the LSM 9 group would also choose generic medication and the LSM 10 group would choose original medication, if given a choice.

This provides interesting information incongruent with what is expected. According to this analysis, the LSM combined group, including the LSM 9 group, will most likely choose generic medication when a choice in a pharmacy. What is surprising about the outcome of this study is that the LSM 10 group will choose original medication when given this choice. The highest uncertainty lies within the LSM combined group, followed by the LSM 10 group and then the LSM 9 group. This outcome is in contrast with the study of Shrank et al. (2009).

In the Shrank et al. (2009) study, the wealthiest respondents were more likely to have a preference for generic medication, a finding similar, to some degree, to the current study. It is important to take into account that the LSM 9 and LSM 10 categories make up the uppermost bracket of the living standards measure. As seen in the results, the LSM 9 group will choose generic medication, whereas, the LSM 10 category will rather choose original medication.

Why is it that the one upper LSM group prefers generics over originals? There may be a number of reasons. Firstly, there is enough money in the LSM 10 group and so they do not need to find cheaper products to do the same thing. They may be satisfied to pay the price for the best product on the market. Secondly, because this is also the group with the second biggest uncertainty issue, they may not know there is a cheaper option available or their physician or pharmacist may not have discussed with them that there are cheaper products on the market. The LSM 9 group may still shop around for the cheaper option, as seen from the analysis, and they may more likely be the group that talk to their doctor or pharmacist to ask for cheaper options. This was seen in Shrank's (2009) study where half the respondents

were comfortable asking their doctor or pharmacist to substitute their medication for the generic equivalent.

The LSM combined category (more than half the respondents fell within this grouping) would choose generic medication. Keep in mind that the LSM combined category is the middle class (LSM 5 to 8) category and not the lower class (LSM 1 to 4) category. Shrank et al. (2009) states that sicker, poorer and older respondents are more concerned with the safety of generic medication. Therefore, this group of individuals are only concerned with medication safety and so, if they know it is safe to use, they will choose something that is fairly cheap and effective. One can extrapolate this idea to the LSM combined group as well. If they find the medication to be safe and effective, they will choose to buy it. Clearly this group find generic medication safe, cheap and effective explaining why more than half the respondents mentioned preference for this option. Again, it is important to remember that this is the group with the highest uncertainty rates of all three LSM groups. This group of individuals need guidance and advice from their physician in choosing a medication type.

In conclusion, it can be seen that respondents are generally open to the idea of generic medication. More than half indicated that they would purchase generic medication if given a choice. It also became apparent that more women would be inclined to choose generic medication. The older respondent would also be the consumer that is more likely to purchase generic medication. In the two identified racial groups, the White respondent would choose generic medication and the Black respondent would choose the original medication. Socio-economically, the middle-class and upper-middle-class consumer would choose generic medication and the affluent consumer would choose original medication.

Within these analyses it also became apparent that there were a couple of respondents that were uncertain about choosing between the different type of medications. In the following discussion, the focus will fall on the respondent that is uncertain and does not know which medication to choose.

6.6 General Discussion

As mentioned, there were a couple of respondents who were unsure which medication to choose when faced with such a choice. These respondents come from all walks of life, men or women, young or old, black or white and in any living standard. Why are people so uncertain of the type of medication to choose? A possible answer to this question lies in the literature reviewed in Chapter 2 indicating that communication, or the lack thereof, between

the respondent and his/her physician plays a central role in medication preference. As outlined in Chapter 2, Shrank et al. (2009) mention that only 19% claim that their physicians talk to them about generic medication, while half claim their healthcare providers seldom or never talk to them about generic medication. Twenty four percent report that their pharmacist talks to them about generic medication, while half claim that their pharmacists never talk to them about generic medication. It is imperative that there is good communication between the respondent and his/her physician. For example, it was mentioned in Section 6.4 above that the respondent would most likely purchase medication when recommended by either the physician or pharmacist.

From the results provided by Shrank et al. (2009) it becomes apparent that the respondents of the current study experience the same problem. They too are uncertain of which medication to choose as a result of the limited medical personnel assistance and guidance around generic medication and what it entails. Blue Cross Blue Shield of Minnesota (2006), as mentioned in Chapter 2, claims that the only way generic medication usage will increase is if the patients ask for generic medication or cheaper alternatives to the original product. This statement encourages the exchange of beneficial information regarding cheaper versions of medication between the patient and the physician and or pharmacist. In 6.4 above it was discussed that only a third of respondents went out of their way and asked their physician/pharmacist for an effective generic alternative, corresponding to the results of Shrank et al. (2009).

The physician/pharmacist has a golden opportunity to help consumers with their uncertainty pertaining to medication choice. If one can recall, Ladha (2007) and Kersnik and Peklar (2006) found that a physician's prescription, or the recommendation they provide, plays a very important role in the purchasing of medication by a patient. This corresponds with the findings of this explorative study, as explained in Section 6.4 above. Let us focus, for one moment, on the idea that this does happen in conversation between patient and physician/pharmacist. It is necessary to take into account the medical professional's ideas and attitudes towards generic medication as well (as stated by the Best Practice Journal (2007) explained in the second chapter).

Taking the ELM into account, the physician/pharmacist has a great opportunity to inform his/her patients about the different types of medication. This opportunity will help create the environment to inform or change the patients' ideas about medication as a whole if the physician/pharmacist knows what he/she is talking about. Looking at the elaboration

likelihood continuum (Postulate 2 A) (Petty & Cacioppo, 1986), if the consumer has the time, and the physician/pharmacist takes time to explain the differences and the pros and cons, then the consumer might make an informed choice, choosing a product that is best for him/her at that stage, be it based on price, efficacy or quality of the product. It is likely that the consumer will process the information according to the central route, the route best for long term retention and attitude change. If, however, the patient is pressed for time, then the explanation of the physician/pharmacist might be in vein. The consumer might change his/her opinion about a certain product but it might not last long. In this situation, the consumer may use the peripheral route of processing potentially leading to a behaviour change but one that would not last long. As per Postulate 4C (Personal relevance) (Petty & Cacioppo, 1986), if the incoming message is of importance the individual will most likely listen to and take to heart the message. The same goes for personal responsibility, Postulate 4D (Personal responsibility) (Petty & Cacioppo, 1986). If the consumer takes his/her health seriously they will listen to the medical professional and what they have to say about medication.

As mentioned, in the ELM, source credibility or trustworthiness (the physician and pharmacist) (Postulate 3C - Trustworthiness) (Bagozzi et al, 2007) is of importance when conveying a message that there are products out on the market that are as effective and reliable as the original at a significantly discounted price. What ties in with source credibility is the fact that consumers want to hold correct attitudes towards a product (Postulate 1) (Petty & Cacioppo, 1986). In order to hold the correct attitude towards generic medication, for example, the consumer will look towards a credible source (physician/pharmacist) to obtain knowledge. When the medical professional holds a positive attitude towards generic medication, then affecting elaboration (Postulate 3B) (Petty & Cacioppo, 1986) might occur. This occurs when the consumer experiences high elaboration likelihood where they want to hold the same attitude towards generic medication as the medical professional. This results in an attitude change. As seen in Section 6.4 above, respondents highly regard recommendations given by medical professionals and would purchase the recommended product simply because a credible source informed them to make the purchase.

In some studies, like those done by Gossell-Williams and Harriot (2007), some pharmacists lack confidence in generic medication requiring more information be provided to them to enable accurate information dissemination. Thus, if medical professionals' lack confidence in their knowledge about generic medication, they may deliberately leave out necessary information that could save the consumer money in the long run. The consumer needs to

learn to ask medical professionals if they would recommend generic alternatives, leading to money saving on medication that works just as effectively. From this, it becomes apparent that there needs to be education of the consumer and the medical professionals to ensure accurate knowledge regarding the workings of generic medication and medication as a whole.

In summary, the use of the ELM explains the attitude structure of the consumer within this study. The underlying attitude structure shows that all consumers would like to hold correct attitudes, as explained by Postulate 1(Holding correct attitudes) (Petty & Cacioppo, 1986). The consumer wants to feel that the attitudes they hold are correct. This idea is then further strengthened by the source credibility and trustworthiness of a medical professional (as seen in Section 6.4 above and as explained by Postulates 3B (Affecting elaboration) (Petty & Cacioppo, 1986) and 3C (Trustworthiness) (Bagozzi et al., 2007)). The consumer would most likely change his/her behaviour to hold the same attitude as the medical professional. Prior knowledge is also an important aspect of the structure of attitudes and is explained by Postulate 6A (Prior knowledge) (Petty & Cacioppo, 1986). If the consumer has a vested interest in his/her health, and the message conveyed by the medical professional is directly relevant to the consumer, then Postulate 4C (Personal relevance) (Petty & Cacioppo, 1986) and Postulate 4D (Personal responsibility) (Petty & Cacioppo, 1986) is of importance. The ELM is relevant to this explorative study and explains most of the attitude structures held, including positive or negative attitudes towards medication, generic or original.

In the following section a discussion will follow on the outcome of the parametric statistics used in this study.

6.7 Parametric Statistics

As previously mentioned in Chapter 5, parametric statistics were conducted to firstly condense the items in the questionnaire into a workable format by using a factor analysis and then a MANOVA was utilized to try and explain the results obtained from the Chi-square analyses conducted to establish gender and race differences. Lastly, a regression analysis was used to identify which factors to focus on in future research.

6.7.1 Factor analysis

As mentioned in previous chapters, the measurement instrument was developed for the current study. The second section of the questionnaire consisted of numerous, 5-point Likert scale items. This resulted in a factor analysis, using principle component analysis, to factor these different questions into a more manageable format. The whole process can be viewed in Chapter 5.

The outcome of this factor analysis was nine factors identified by the statistical programme SPSS 17. The nine factors follow (the last factor was not included in subsequent analysis):

- Consumer Ideas about Generic Medication
    - This factor includes all items of the questionnaire that pertain to consumer general ideas about generic medication.
- Pro Branded Medication
    - This factor includes all items that give a positive outlook on original medication. This factor also includes items that are negative towards generic medication.
- Consumer Ideas of Medical Professionals Prescribing
    - This factor includes all items relating to medical professionals' prescribing behaviour.
- Generic Medication Effectiveness
    - This factor includes all items regarding the effectiveness of generic medication.
- Consumers Purchase Cheaper Products
    - Within this factor, all items were identified that relate to buying or choosing cheaper products.
- Consumer Ideas on the Quality of Generic medication
    - Within this factor, all items were identified to relate to medication quality.
- Prescriptions
    - Within this factor, all items are grouped together that relate to the purchasing requirements of valid prescriptions for generic medication or medication in general.
- Consumer Recommendations
    - Within this factor, all items related to consumer recommendations for generic medication to others and significant others recommendations for medication to the consumer, are grouped together.

- Variable Mix (three variables loaded onto this variable, however, as discussed later these variables were not considered relevant for statistical purposes and were left out of the analysis).

The eight remaining factors were used in the following MANOVA and regression analysis explained below.

6.7.2 MANOVA

A MANOVA was used to investigate consumer attitudes towards medication differences between gender and race groups. As mentioned in Chapter 5 Section 5.5.2, the MANOVA had the following results. Firstly, there was no significant difference between males and females on the combined dependent variables, $F(8, 251) = .91$, $p = .51$; Wilks' Lambda .97; partial eta squared = .03. There was also no statistical significance using a Bonferroni adjusted alpha level of .006. Secondly, there was also no significant difference between White and Black participants on the combined dependent variables, $F(8, 251) = 1.34$, $p = .20$; Wilks' Lambda .96; partial eta squared = .04.

The results, therefore, show that there are no significant differences between male and female attitudes towards medication usage and recommendation. The same goes for differences between racial groups. There are no significant differences between Black and White participants' attitudes towards medication usage and recommendation. There is one shortcoming in this research. The sample chosen should have been more representative regarding gender and race. This would have benefitted the study tremendously allowing for a more nuanced exploration of differences related to these variables.

One can also see, from the Chi-square tests, that there was no significant association between gender and race when an individual is confronted with a choice of medication in a pharmacy. But, as the Chi-square tests have shown, there were meaningful results that became apparent even though there were no significant associations between these variables. The MANOVA further confirmed that in the current sample there were no significant differences between these two variables and choosing different medications.

6.7.3 Regression analysis

The regression analysis found the following:

Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicolinearity and homoscedasticity. The variable, Pro Branded Medication, was entered at Step 1, explaining 33.6% of the variance in consumer choice to buy original or generic medication. Then, Consumer Ideas of Generic Medication was entered at Step 2, explaining 37.7% of the variance in consumer choice to buy original or generic medication. After the entry of Consumer Purchase Cheaper Products at Step 3, the total variance explained by the model as a whole was 41%, $F(3, 255) = 58.82$, $p < .0005$. The control measures explained an additional 3.2% of the variance in buying behaviour/choosing behaviour after controlling for Pro Branded Medication and Consumer Ideas of Generic Medication (R squared changed .03, $F(1, 255) = 13.76$, $p < .001$). In the final model, all the variables were statistically significant, with Pro Branded Medication holding the highest beta value ($\beta = -.94$, $p < .001$), followed by Consumer Ideas of Generic medication ($\beta = .56$) and lastly Consumers Purchase Cheaper Products ($\beta = .23$, $p < .001$).

It was also shown, from the regression analysis, that there was a negative loaded value on Consumer Ideas of Generic medications variable. Therefore, people feel negative towards generic medication and positive towards original medication. The consumer can be helped to make the right decision to purchase either original medication or the generic alternative. However, more individuals will listen to their physician or pharmacist when trying to make their decision clearer. These individuals can help increase the amount of people buying generic alternative medication (as seen in the discussion provided in Section 6.4 above). The three factors that can be productively explored in future studies are, namely, Pro Branded Medication, Consumer Ideas of Generic Medication and Consumers Purchase Cheaper Products.

6.8 Limitations of the Study

Looking through the study, there are a couple of limitations that need to be highlighted, leaving room for improvement for future studies. These limitations include:

- The sample is only restricted to certain population groups, specifically gender, race and age.
- This study cannot be generalized to the broader public with confidence due to the fact that a convenience sample was used.

- The method used for sampling and data collection can be enhanced. Within this study, a convenience sampling method was used which is adequate for an explorative study. A stratified random sampling method would be better to get a clearer picture of the attitudes of a particular population grouping. With the use of the stratified random sample method the data collection method will also be enhanced.
- The sample size was adequate for this explorative study but a bigger sample would have been ideal to generalize back to the population.
- The focus of this study was only on consumers. Medical professionals, such as physicians and pharmacists, also have attitudes towards generic medication which can be usefully explored.

6.9 Recommendations for Future Studies

The limitations identified in Section 6.8 above can be rectified in future studies by making use of a representative sample, for example through stratified random sampling. This can be particularly useful to ensure that there are representative amounts of men and women in the sample, from all age categories and racial groups in South Africa. By using a representative sample one can also, more confidently, generalize the findings back to the population, increasing the credibility of the research results.

This explorative study only made use of quantitative analysis but if one wants to gain better insight into the essence of consumer attitudes towards generic medication, a qualitative component can be added in future research endeavours. As mentioned, this study only focused on the consumer, but it is proposed that in future research the attitudes of medical professionals, like physicians and pharmacists, including medical aid companies, be explored as they also have a vested interest within this field.

It is also proposed that the questionnaire developed for this explorative study be further researched and elaborated on so as to be a valid research instrument for use by other researchers in the exploration of medication attitudes among consumers. The reason a factor analysis and regression analysis was used was to determine which questions in the questionnaire formed clusters for the focus in future studies to build and elaborate on. The following three categories should be further investigation with the adaptation of the current questionnaire, namely, Consumers Pro Branded, Original Products, Consumer Ideas of Generic medication and Consumers Purchase Cheaper Products. It is also envisioned that item response theory should be used to adapt the current measurement instrument.

Lastly, for future studies, it might be valuable to look further into gender, age and race and how these groups of individuals hold attitudes towards generic medication. As seen above, there were no significant differences found with the use of Chi-square tests, confirmed by a MANOVA, but these variables are none the less interesting and differences were found.

6.10 Conclusion

This explorative study was a very interesting study to conduct. From the literature review, and the data analysis, it was fascination to see that consumers, and even medical personnel, are, at times, uncertain about the efficacy of generic medication. Also, the fact that people buy generic medication if prescribed or recommended by a physician or pharmacist, is a fascinating finding. The attitude of medical personnel towards generic medication is very important to the patient. If medical personnel are not in favour of generic medication, then the chances of prescribing or recommending these products are very slim. If medical personnel have favourable attitudes towards generic medication, then they need to learn to communicate effectively with their patients as they are dependent on their medical knowledge and expertise.

In this day and age, everything is expensive and medication is one of those expenses one must make provision for. Thus, if there is a product out there that functions the same and ultimately does the same job, then we as consumers need to know about it. It boils down to communication, as seen through the use of the ELM. It is possible to change another person's attitude towards a product or service by just taking the time to explain the benefits of this product or service. This attitude change in the person will hold longer and may be resistant to change.

It does not matter if we are young or old, White or Black, male or female, we all need to be presented with more information regarding medication, especially generic medication, in order to make informed decisions in life, allowing us to become knowledgeable consumers.

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Appendix A.

Questionnaire			Official Use
	Respondent Number:		
Please answer the following questions as truthfully as possible. Answer the questions below with a cross X			
Section 1 Biographical Information			
1 Age:			V1
2 Sex:	Male	1	V2
	Female	2	
3 Race:	White	1	V3
	Black	2	
	Coloured	3	
	Indian	4	
	Other	5	
4 Do you take medication for any reason?	Yes	1	V4
	No	2	
5 If answered YES in the above question: How often do you take medication?	Daily	1	V5
	Weekly	2	
	Monthly	3	
	As Needed	4	
6 Are you on a medical aid? (eg. Discovery, Medi-Help, etc)	Yes	1	V6
	No	2	

Section 2

In the following section answer only Yes, No, or Not Sure by making a cross X in the appropriate box.

7 Do you know what generic medication is?				V7
	Yes	No	Not Sure	
8 Have you ever used generic medication before?				V8
	Yes	No	Not Sure	
9 Would you say that it was effective?				V9
	Yes	No	Not Sure	
10 Are you taking chronic medication?				V10
	Yes	No	Not Sure	

11 If answered yes in the above question, is your chronic medication a generic? V11

Yes	No	Not Sure

12 If you where brought before a choice in a pharmacy would you take V12

Original Medication	Generic Medication	Not Sure

Section 3

In this section just make a cross X in the appropriate box whether you Strongly Agree, Agree, Not Sure,

13 I prefer taking original medication. V13

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

14 I always prefer to take the branded product when I have a choice. V14

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

15 Buying generic medication is like buying second-hand products. V15

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

16 Generic medication has a place. V16

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

17 In today's economic climate I need to save all the money I can, thus I purchase cheaper products. V17

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

18 Cheaper does not necessarily mean poorer quality. V18

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

19 I think that generic medication is effective. V19

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

20 I think that the cheapness of a generic product points to the fact that it is not effective. V20

Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree

21	I think the branding of original medication plays a significant role in the purchasing thereof.					V21
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
22	I do not think that generic products work as effectively as the original product.					V22
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
23	I do not think a doctor's recommendation to take generic medication plays a leading role in the purchase thereof.					V23
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
24	I do not think a pharmacist's recommendation to take generic medication plays a leading role in the purchase thereof.					V24
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
25	When a pharmacist asks if I would like to try a generic product, I think that he/she is giving me a product that will work.					V25
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
26	I think when a doctor or pharmacist recommends a generic product to me that he/she knows it will work as effectively as the original product.					V26
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
27	I think a pharmacist knows that a generic product contains the same active ingredient as the original product.					V27
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
28	I think a doctor knows that a generic product contains the same active ingredient as the original product.					V28
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
29	I think generic medication is a waste of money.					V29
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
30	I think generic pharmaceutical companies should ensure that their product is as effective as the original product.					V30
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

31	I think it is not necessary for a generic pharmaceutical company to prove that their product contains the same active ingredient as the original product.					V31
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
32	When I am in a pharmacy, I ask the pharmacist to give me generic medication.					V32
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
33	When I am at my doctor, I ask him/her to prescribe generic medication.					V33
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
34	When filling a prescription at a pharmacy I ask for cheaper medication.					V34
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
35	I ask out of my own for a generic product.					V35
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
36	I took generic medication before and it did not work.					V36
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
37	I would use generic medication if I knew that it works just as effectively as the original product.					V37
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
38	I would use generic medication because of the fact that it is cheaper than the original medication.					V38
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
39	I would buy a cheaper product if I knew that it works as effectively as the original product.					V39
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
40	The cheapness of generic medication would sway me to purchase it.					V40
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
41	I would buy generic medication if it is recommended by a pharmacist.					V41
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

42	I would buy generic medication if it is prescribed by my doctor.					V42
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
43	I feel that original medication is better than generic medication					V43
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
44	I feel that one needs the original medication in order to get better results					V44
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
45	I feel I would waste my money on generic medication					V45
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
46	I do not feel the same effect when I am taking generic medication.					V46
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
47	I feel there is a difference in effect between generic and original medication.					V47
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
48	I believe generic medication can work for some people but it does not work for me.					V48
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
49	I believe there should be generic alternatives for those who cannot afford the original medication.					V49
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
50	I believe generic medication should be regulated more strictly than it is now.					V50
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
51	I buy a product no matter what the product price is.					V51
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
52	I always shop around for the best product prices.					V52
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
53	My medical aid pays for generic medication					V53
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

54	I pay a lot of money to be on a medical aid, thus I would assume that original medication should be paid in full by my medical aid.					V54
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
55	My medical aid should give me the option to decide for myself if I want a generic alternative.					V55
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
56	I would not buy a generic medication even if my medical aid paid everything in full.					V56
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
57	Medical aids are there to save us as consumers money thus generic alternatives is a must.					V57
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
58	Medical aids should ensure that consumers have a wider range of medication to choose from.					V58
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
59	I would rather pay more for something that I know works.					V59
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
60	I tend not to spend too much money on medication.					V60
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
61	I work very carefully with money when it comes to pharmaceuticals.					V61
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
62	I normally purchase medication that is on promotion or on specials when in pharmacies.					V62
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
63	Some original medication is very expensive, so I tend to decide on the cheaper alternative.					V63
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
64	I contemplate a lot around prices these days, thus the cheaper the better.					V64
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
65	I would like generic medication to be as effective as the original product.					V65
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

66	The effectiveness of the generic medication is in essence the product's quality.					V66
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
67	A product's quality mirrors its efficacy to work.					V67
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
68	Medication should be effective regardless of its originality.					V68
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
69	The active ingredient in the generic medication should be as effective as in the original.					V69
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
70	Generic medication is ineffective and I would not use it.					V70
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
71	The quality of generic medication should be the same as that of the original medication.					V71
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
72	Quality is important but not necessary in the production of generic products.					V72
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
73	The quality of generic medication is the same as those of the original medication.					V73
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
74	The quality of the active ingredient in the generic medication should be the same as that of the original medication.					V74
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
75	To have a product that is effective shows the product is of a good quality.					V75
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
76	The tablet texture of generic medications are not of good quality.					V76
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

77	Generic medication looks different than the original medication.					V77
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
78	The quality of generic medication is in general not the same as original medication.					V78
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
79	The taste of generic medication is also not the same as the original medication.					V79
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
80	I do not need a doctor's prescription when buying generic medication where the original medication do need a prescription (e.g. antibiotics, depression medication etc.)					V80
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
81	All generic medication can be bought without a valid doctor's prescription.					V81
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
82	I need a valid doctor's prescription for all types of prescribed medication including generic medication.					V82
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
83	A pharmacist can give me any generic medication without a valid doctor's prescription.					V83
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
84	If I need a prescription for the original product I do not need one for the generic alternative.					V84
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
85	In order for my medical aid to pay for my medication I need a valid prescription even if it is for the generic alternative.					V85
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
86	I will use generic medication if one of my friends recommends it.					V86
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
87	I will use generic medication if one of my family members recommends it.					V87
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

88	I will recommend generic medication to my friends or family members.					V88
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
89	I will not recommend generic medication because it is not effective.					V89
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
90	I will recommend generic medication because of the price.					V90
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
91	I will recommend generic medication because it worked for me.					V91
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
92	I will not recommend generic medication because of the quality.					V92
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
93	The quality of generic medication is the same as that of the original product therefore I will recommend it.					V93
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
94	I had a bad experience with generic medication and therefore will not recommend it.					V94
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	
95	One of my family members had a bad experience with generic medication and therefore will not recommend it.					V95
	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree	

Section 4

Answer ONLY True or False for the following questions by marking a X in the appropriate box.

Which of the following do you have in your household?

96	T.V.Set	TRUE	FALSE	V96
97	VCR Player	TRUE	FALSE	V97
98	DVD Player	TRUE	FALSE	V98
99	Mnet/DStv Subscription	TRUE	FALSE	V99
100	HiFi/Music centre	TRUE	FALSE	V100
101	Computer/Laptop	TRUE	FALSE	V101
102	Vacuum Cleaner	TRUE	FALSE	V102
103	Dishwashing machine	TRUE	FALSE	V103
104	Washing machine	TRUE	FALSE	V104
105	Tumble Dryer	TRUE	FALSE	V105
106	Home Telephone (excl. Cell)	TRUE	FALSE	V106
107	Deep freezer	TRUE	FALSE	V107
108	Fridge freezer (combination)	TRUE	FALSE	V108
109	Electric Stove	TRUE	FALSE	V109
110	Microwave oven	TRUE	FALSE	V110
111	Build-in kitchen sink	TRUE	FALSE	V111
112	Home Security Service	TRUE	FALSE	V112
113	3 or more cell phones in household	TRUE	FALSE	V113
114	2 cell phones in household	TRUE	FALSE	V114
115	Home theatre system	TRUE	FALSE	V115
116	Tap water in house or plot	TRUE	FALSE	V116
117	Hot Running water from a geyser	TRUE	FALSE	V117
118	Flush toilet in/outside house	TRUE	FALSE	V118
119	There is a motor vehicle in your household	TRUE	FALSE	V119
120	I am a metropolitan dweller	TRUE	FALSE	V120
121	I live in a house/cluster/townhouse	TRUE	FALSE	V121
122	I live in a rural area	TRUE	FALSE	V122
123	There is no radio or only one radio in the household	TRUE	FALSE	V123
124	There are no domestic workers or household helpers in the household	TRUE	FALSE	V124

Thank you for taking the time to answer this questionnaire.