

Evaluating Gauteng pharmacists' attitudes towards generic medicines

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ABSTRACT

Generic medicines are very important in driving down the health care cost. In a country like South Africa, where more than 80% of the population depend on the state health care, it is important to find ways to reduce cost.

The main aim of the study was to evaluate the attitude towards generic medicines by pharmacists in Gauteng province of South Africa. Gauteng as the economic hub of the country, with the highest population and the highest number of pharmacies and pharmacists, obtaining a picture around the attitude towards generic medicines would help the all the stakeholders in the health care sector to identify areas of concern and address them to drive a positive attitude.

In order to evaluate the attitude, Fishbein models, which noted the intention to perform the behaviour in question as the immediate antecedent of any behaviour, were used. The models identified two conceptually independent determinants of intention, which are attitude towards the behaviour (personal) and subjective norm (social). Depending of which model one is using, one more determinant of the intention “perceived behavioural control” can be added on the theory of reasoned action to form model of planned behaviour. By evaluating the attitude one can therefore determine the level of intention to perform the behaviour of interest which is generic substitution in this study.

An empirical study was conducted among 116 pharmacists and assistants in Gauteng province. The methodology included research design, instrument development, sampling methods, data collection, capturing and statistical analysis. The results were analysed using Cronbach Alpha coefficients to measure reliability of the research instrument, t-test and ANOVA to test the hypothesis and the variance between groups; the effect sizes and Spearman's rho to determine the correlation and relationship between two variables of interest.

The results of the study showed that, 94% of the respondents believe that generics are viable alternatives to innovator medicines. On the question of pharmacists' attitude towards generic medicines results showed that there was no significant difference in almost all the demographic characteristics gender, age, qualifications, employment level, years of experience and type of pharmacy one practices. The only significant driver of the difference in attitude is the location of the pharmacy where

pharmacists practicing in the townships and the city centre were found to be more receptive to generics than those in the suburbs.

Due to reliability failure on the control belief construct, the theory of planned behaviour was downgraded to theory of reasoned action, to exclude the control belief construct for further statistical analysis.

Correlation between the two attitudes constructs, behavioural belief and evaluation of behavioural outcome was one of the highest, where behavioural belief was identified as the direct measure of attitude and also the main driver.

The study concluded that attitude is one of the most important personal factors influencing both the organisation and individual consumer buying behaviour. Evaluating individuals' attitude to the behaviour (use of a product or service) would help marketers to communicate the right message to the right customers.

Keywords: Generic medicine, attitude, pharmacists, innovator medicines, generic substitution, Theory of planned behaviour, consumer behaviour

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CHAPTER 1 STUDY OVERVIEW

1.1. INTRODUCTION

South Africa has the largest health care market in Africa, estimated to be worth approximately \$31.5 billion at the end of 2013 and the pharmaceuticals make up approximately \$3.7 billion of this figure. Health care spending in South Africa is expected to rise by an annual average of 8.8% between 2013 and 2017, with spending as a proportion of GDP remaining stable during the period, at 8.5% (Deloitte, 2014).

A concern about the cost of private health care in South Africa has been raised for the past ten years. Hospital admissions are the main cost drivers, followed by medicine and consultations. In the past seven years the Department of Health tried to curb the medicine cost by introducing the single exit pricing and dispensing fees for pharmacists. This has led to several legal challenges and several pharmacies closing shop due loss of profits. The government is also looking at the International Benchmark Pricing, where the price of medicine in South Africa will be compared with other similar countries, where the lowest price or the average will be used to set the local price (Pharma, 2012).

South African society has been labelled one of the most unequal societies with majority in poverty and unemployment. This inequality is also visible in the access to health care where 16% of the population consume 5% out of 8.5% of GDP on health care, while the entire 84% of the population shares the remaining 3.5% of the 8.5% (Pharma, 2012).

In a country like South Africa, the use of generic medicines present an opportunity to reduce healthcare cost both in the public and the private sectors. Generic medicine has exactly the same active ingredient(s) as the registered or marketed branded (originator) product. Generic manufactures do not incur high research and development costs, they can therefore afford to offer these medicines at 20% to 90% cost savings (Brems, 2011). The Medical Control Council does not limit the number of generics that can be registered per product or molecule; therefore all registered

generics will compete mainly on price, meaning each company should find innovative ways to produce at minimal cost while not compromising the quality.

There is a continuous challenge of balance between driving the health care cost down and also encouraging research and development in order to get new innovative medicine into the market. The originator companies are encouraged to continue doing research and development through patent protection where generic companies are only allowed to register and market their generics usually after 10 years once the originator's patent has expired. During the 10 years of monopoly and beyond, the innovator companies invest more resources in the sales and marketing of their products to maximise profits in order to recoup the research and development investments.

At the loss of patency the originator companies would either implement a generic or a clone strategy where an in-house generic is registered or a clone is also registered and be sold at a cheaper price. In some cases the originator companies rely on the patients and doctors' brand loyalty and do not reduce the prices and still hold significant market share.

In previous years the government introduced The Medicines and Related Substances Control Act No. 90 of 1997, which compels all pharmacists to inform patients presenting with a prescription of an innovator medicine about cheaper alternatives (generics) available in the market (SA, 1997). This resulted in many prescriptions of innovator medicines switched to cheaper generics at pharmacy level. Generic substitution is when a pharmacist replaces a drug prescribed by a doctor with an alternative drug of the same active chemical composition. The practice does not always get an approval of the initiator of the prescription (doctors). Doctors do not like the fact that their prescriptions are tampered with and they have prescribed what they know is best for the patient's condition. Patients who are the end-users also have a part to play where in some cases they will insist on the originator while some will request the generics. A qualitative study looking at the perception and reality around generic medicine revealed that there was negative perception among patients that the generics are poor quality medicines. The reality part of the study which looked at the actual quality of the generics proved otherwise (Patel, 2012).

Patients buying behaviour for the generic medicine is mostly encouraged by the socio-economic factors, while brand loyalty (including past experience) and also socio-economic factors drive innovator medicines. Brand loyalty is also high in chronic medicines than in acute medicines, and in old age than in young age. In a study by Quintal (2012:65), more than 70% of patients never asked neither their the doctor nor pharmacist for generic substitution. Some 65% of patients accepted substitution because of the doctor's recommendation, while only 20% accepted substitution due to the pharmacists recommendation. The correct understanding of the generics, doctor's discussions, patient expenses, experience have been identified as significant factors associated with the willingness to accept generic substitution.

Barbar (2011), evaluated the pharmacists' view, knowledge and perception regarding generic medicines. In this study most of the pharmacists acknowledged the the economic benefit of the generics, with some concerns regarding quality, safety and effectiveness. The pharmacists also proposed doctors' involvement, patients information and advertising of generics as factors which can improve substitution.

Chua (2010) explored the knowledge and perceptions of general practitioners towards the use of generics in Malaysia, where most of the doctors (85%) reported to be prescribing generics actively. The study identified the significant knowledge gap on the side of the doctors where only 4.6% identified the correct bioequivalence standard involved in registering the generics. Only 49.5% agreed that the generics are bioequivalent to the innovator medicines.

Medical Aids also play a very significant role in that, they enforce the use of cheaper generic medicines by reimbursing patients at the price of the cheapest generics. The patient who insists on getting the branded medicine would then have to pay the difference (co-payment). Some medical aids implemented programs where doctors are rewarded if they use generics.

There is clearly a gap between the four main customers of the pharmaceutical market. According to the patients, the end users, the doctor's recommendation is very important for them to accept substitution, while the same doctors do not have

faith and enough knowledge to make that recommendation. Pharmacists have the knowledge, are forced by legislation to recommend generics to the patients but patients do not accept their recommendation.

The Department of Health through their medicine regulatory body the MCC (Medicine Control Council), have measures used to test and approve the generic medicines before being registered for public use. These measures meet the well-researched global standards; therefore one should have confidence in the quality and efficacy of these medicines.

Pharmacists' attitude towards generic medicines will be of great interest in that; it will give an indication of the pharmacists' confidence in the regulatory body and generic registration process. Positive attitude towards generic medicine use will lead to the generic substitution, an important behaviour of interest. As mentioned in the previous sections, generic substitution is presently an opportunity to curb continuous rise in health care cost by reducing the pharmaceutical cost.

The attitude as predictor of behaviour (generic substitution) will also inform the marketing strategies of both the generic and originators companies. Marketers in the generic companies would like to change a negative attitude to a positive attitude towards the generics, while the originator/innovator companies would like to capitalise on the negative attitude and drive brand loyalty. Other stakeholders like funders and government would also to change negative attitude to a positive one in order to drive the cost down.

The role of drug companies and their marketing activities cannot be ignored, where the originator companies invest in activities at the doctors/prescribers to plant a seed of doubt regarding the quality and efficacy of generic medicines. The generic companies on the other hand focus most of their activities at pharmacy level where pharmacists are encouraged to recommend and dispense their generic drugs.

1.2. PROBLEM STATEMENT

Expenditure between the private and public sectors in South Africa is at a near 50/50 parity, with the latest full-year figures from World Health Organisation showing government expenditures on health as 48% of total expenditures and the private

sector figure at 52%. Despite the private sector being the slightly larger half in spending terms, only 17% of the population benefits from access to private health care via medical schemes (which are often considered too expensive for the majority of the population) (Deloitte, 2014).

According to the National Treasury's Fiscal Review for 2011, the GDP spend on health was R120.8-billion (48.5%) in the private sector, which covers 16.2% of the population or 8.2-million people, many of whom have medical cover while R122.4-billion (49.2%) in the public sector, which is made up of 84% of the population, or 42-million people, who generally rely on the public health care sector (South Africa Info, 2012).

The government has proposed creating a National Health Insurance (NHI) system in order to address the disparity between the public and private sectors, and also to ensure that all citizens have access to essential health care. The system is estimated to cost around \$16.4 billion to implement over nine years and would be funded through personal taxes and mandatory employer contributions.

Marketing researchers and managers alike rely heavily on attitudinal surveys to estimate consumers' preferential responses to a range of marketing objects, such as products, brands and advertisements, and so on. It is therefore very important for the marketers who are interested in changing consumer behaviour to understand the concept of attitude and the process of attitude formation (Argyriou, 2011).

The use of generic medicines presents an opportunity to reduce private healthcare cost. In South Africa the use of generic medicine has already surpassed that of branded medicines on volume (60%), but on value generics usage is only at 31%. According to Paul Anley, chief executive of Pharma Dynamics, on average, generics were 50% cheaper than their brand-name equivalents. Using the single exit price (SEP) of Norvasc (10mg), a popular brand-name cardiovascular drug as an example, which costs R196.93 (including VAT), compared to the SEP of the generic equivalent, Amloc (10mg), which is priced at R108.31 – this cost difference saves South Africans about R55-million a year (Mkhize, 2013)

According to Zahida Khan, general pharmacy manager at Netcare's Primary Care division, pharmacists play an important role in the more prevalent use of generics. If

generic alternatives to original patented drugs are available, it is mandatory by law for a pharmacist to suggest such alternatives to healthcare consumers. This is all part of the pharmacist's role to educate, inform and ensure that consumers do not pay more than they have to for medicines (News24, 2013).

Gauteng is South Africa's smallest province in land size yet the biggest in population size and economic contribution. Gauteng population is estimated to be around 12.7 million which is 24% of the South African population, followed by KwaZulu-Natal contributing 19.7% of the population (Statistics South Africa 1, 2013). Gauteng is also referred to as the economic hub of South Africa contributing 34.7% to the economy followed by KwaZulu-Natal with 15.8% (Statistics South Africa 2, 2013). In South Africa there are about 9 674 pharmacies (independent, groups, public and private hospitals and pharmaceutical companies), where 3400 (35%) are found in Gauteng. One thousand of those pharmacies found in Gauteng are retail pharmacies, which makes 35% of retail pharmacies in the country (Medpages, 2014).

Given the role played by pharmacists in the drive for generic medicine use, it is important that these health professionals have a positive attitude about generic medicines. Any negative attitude and/or perception will hamper the pharmacists' ability to fulfil their roles of educating, informing and ensuring that consumers do not pay more than they have to for medicines. Changing the attitude of pharmacists in Gauteng can have a greater impact on the overall health care expenditure given the contribution of the province to the economy, the population size and the number of pharmacies in the province.

1.3. RESEARCH QUESTIONS

The current study will look into the following questions:

- What is the pharmacist's attitude towards the generic medicines?
- Is there a correlation between the attitude and the demographic characteristics?
- Is the attitude consistent with The Medicines and Related Substances Control Act No. 90 of 1997?
- Will the observed attitude support the intention to substitution?

1.4. EXPECTED CONTRIBUTION OF THE STUDY

The study would help the stakeholders in health care to determine the pharmacists' attitude towards the generic medicines so as to put together strategies to change or drive the attitude for the desired behaviour.

The government and medical aids' objective is to drive the medicine expenditure down by driving a generic substitution. A positive attitude towards generic medicines would lead to more substitution and reduced expenditure; while a negative attitude would inform strategies for behaviour change. Further studies can be done to identify the knowledge gaps and the concerns with regard to the generic medicines, which could inform training modules for the pharmacists in order to address the concerns and closure of the knowledge gaps.

The pharmaceutical industry, especially the generic companies can use the information to identify their customers' needs and concerns in order to drive the usage of their products. As for the innovator companies marketing opportunities can be identified to drive the use on the original over the generics.

1.5. RESEARCH HYPOTHESES

The following hypotheses were generated based on the Theory of Planned Behaviour.

Hypothesis 1

- H_0 = there is no significant difference on attitude towards generic medicines between pharmacists and assistants
- $H_A \neq$ there is a significant difference on attitude towards generic medicines between pharmacists and assistants

Hypothesis 2

- H_0 = there is no significant difference on attitude towards generic medicines among pharmacists age groups
- $H_A \neq$ there is a significant difference on attitude towards generic medicines among pharmacists age groups

Hypothesis 3

- H_0 = there is no significant difference on attitude towards generic medicines among pharmacists genders
- $H_A \neq$ there is a significant difference on attitude towards generic medicines among pharmacists genders

Hypothesis 4

- H_0 = there is no significant difference on attitude towards generic medicines between pharmacists of different work experiences
- $H_A \neq$ there is a significant difference on attitude towards generic medicines between pharmacists of different work experiences

Hypothesis 5

- H_0 = there is no significant difference on attitude towards generic medicines between pharmacists in different pharmacy locations
- $H_A \neq$ there is a significant difference on attitude towards generic medicines between pharmacists in different pharmacy locations

Hypothesis 7

- H_0 = there is no significant difference on attitude towards generic medicines between pharmacists of different level of qualifications
- $H_A \neq$ there is a significant difference on attitude towards generic medicines between pharmacists of different level of qualifications

Hypothesis 8

- H_0 = there is no significant difference on attitude towards generic medicines between pharmacists in different types of pharmacies
- $H_A \neq$ there is a significant difference on attitude towards generic medicines between pharmacists in different types of pharmacies

1.6. RESEARCH OBJECTIVES

1.6.1. General objective

The main aim of the study is to evaluate Gauteng's pharmacists' attitude towards generic medicines, and to determine if the attitude is in line with the Medicines and Related Substances Control Act No. 90 of 1997.

1.6.2. Specific objective

The following were identified as the study's secondary objectives:

- Determination of the pharmacists' attitude towards generic medicines
- To determine if there is a difference between pharmacists and assistants in terms of attitude towards generic medicines
- Evaluate the application of the Fishbein models in evaluating pharmacists' attitudes to generic medicine
- To evaluate the reliability of the measuring instrument to evaluate the pharmacists' attitudes
- To measure the correlation between the attitude and subjective norms
- To determine correlation between attitude and perceived behavioural control
- To evaluate the reliability of attitude in predicting the intention

1.7. RESEARCH METHODOLOGY

1.7.1. Literature and theoretical review

A Literature review was done on consumer buying behaviour (personal and organisational) and factors playing a significant role in predicting buying behaviour or the intention to perform behaviour of interest (generic substitution). Additionally a literature review on the relationship between attitude and behaviour was done.

1.7.2. Empirical study

The study follows the empirical approach to evaluate the pharmacist's attitude towards the generic medicines using the Fishbein Model. Quantitative research was conducted using a questionnaire to evaluate the pharmacists' attitude towards generic medicines. The research instrument was designed to collect demographic information of participants and quantitative information which was mainly collected using a 7-point Likert scale.

The sampling frame was all pharmacists and pharmacists' assistants practicing in private retail pharmacies in Gauteng province. A non-probability convenience sampling method was used due to its cost effectiveness.

The research problem was identified and a set of both primary objectives and secondary objectives to answer the problem were outlined.

1.8. STUDY LIMITATIONS

The study was conducted in Gauteng province of South Africa which is predominantly urban, meaning there was not enough representation of the rural population which make one third of the South African population. The non-probability sampling convenience method means that the sample may not be a true representative of the population; therefore, the results should be read with caution.

1.9. CHAPTER DIVISION

Chapter One: Study Overview

Chapter one introduced the study overview, the problem statements as well as the research objectives. The challenges of high and increasing health care cost in South Africa and the contribution of the pharmaceuticals to the cost and ways to curb the cost are outlined. The chapter further looked at the key stakeholders in the challenge outlined.

Chapter Two: Literature review

Chapter two included the literature review analysing the South African pharmaceutical market, the Medicines and Related Substances Control Act No. 90 of 1997 and use of generics and how the act apply to different stakeholders. The chapter further looked at the consumer behaviour and factors driving pharmacists' behaviour as consumers. Lastly, in the literature review the theories and/or models for determining the attitude and prediction of behaviour are introduced and the applications are outlined.

Chapter Three: Research findings and Discussion

Chapter three outlined the research methodology, data collection and presented research findings which were based on the demographic information of the respondents, the instrument reliability of the results. Discussion of the research findings was also covered in the chapter.

Chapter Four: Conclusion and Recommendations

Chapter four covered the conclusions and recommendations with regards to the statistical procedures used and the results obtained within this study as well as areas for future research.

1.10. DEFINITIONS OF MAJOR CONCEPTS

Attitude: is a response or assessment given by consumers consistently, favourable or unfavourable, positive or negative, like it or not, agree or not to an object.

Behavioural beliefs: beliefs about the likely outcomes of the behaviour and the evaluations of those outcomes.

Consumer buyer behaviour: includes the processes involved when individuals or groups select, purchase, use or dispose products, services, ideas or experiences to satisfy needs and desires.

Control beliefs: beliefs about the presence of factors that may facilitate or impede performance of the behaviour and the perceived power of these factors.

Generic medicine: an identical or bioequivalent medicine to a brand name medicine in dosage form, safety, strength, route of administration, quality, performance characteristics and intended use.

Generic substitution: is when a pharmacist dispenses an interchangeable multi-source medicine instead of the medicine prescribed by a medical practitioner, dentist, practitioner, nurse or other registered health professional.

Innovator/originator medicine: are medicines that have been newly developed and subsequently patented by a pharmaceutical company.

Normative beliefs: beliefs about the normative expectations of others and motivation to comply with those expectations.

Organisational/business consumers: are those organizations that buy goods and services either for use in making other goods and services or for use in facilitating their business operations.

Pharmaceutical market: The South African Pharmaceutical market is divided into the Total Private Market (TPM) and the public sector market.

Single Exit Price: is a combination of medicine's ex-manufacturer price as determined by the manufacturer or importer of the medicine and approved by the Department of Health plus the logistics fee and value added tax (VAT). It is a price of the lowest unit of the medicine within a pack multiplied by the number of units in the pack.

1.11. CONCLUSION

In this chapter, the research overview was done and the following topics were discussed in details:

- Study purpose
- Problem statement
- The research question
- The primary and secondary objectives to answer the research question
- Research methodology
- Study limitations
- Dissertation chapter divisions
- Definitions of major concepts included in the research.

Chapter two gives an overview of the South African pharmaceutical market with special focus on the generic and the innovator/branded/originator medicines, the role of other stakeholders like pharmacists, doctors, patients, government, companies, medical aids/funders/schemes, in the market. The chapter further provides literature review on consumer behaviour and factors driving pharmacists' behaviour as consumers, the theories and/or models for determining the attitude and prediction of behaviour and their applications. The chapter will also introduce Fishbein's theories of reasoned action (TRA) and planned behaviour (TPB).

CHAPTER 2 LITERATURE REVIEW

2.1. INTRODUCTION

Pharmacists as experts in medicines play a very important role in delivery of health care. They are expected to be the most trusted and accessible source of medications and unbiased information regarding the safe, appropriate, and cost-effective use of medications (Albanese, 2010).

Pharmacists' buying behaviour is of great importance to the pharmaceutical marketers for both generic and innovator companies. In studying the pharmacist's buying behaviour one needs not to ignore the factors influencing business/organisational buying behaviour like environmental, organisational, interpersonal and personal (Kotler, 2012).

Most researchers agree that an attitude has three components: affect, behaviour, and cognition. Affect refers to the way a consumer feels, behaviour involves the person's intentions to act and cognition refers to the beliefs a consumer has about an attitude object. A consumer has high involvement with a product category plus a high perception level of product differentiation between alternatives will most likely follow the cognitive hierarchy of beliefs-affect-behaviour. From the marketer's perspective the sequence of attitude formation is pertinent from a communications point of view. Accordingly, here, a marketer will first attempt to create Attention, then Interest and Desire, and finally Action (AIDA) (Brosekhan, 2013).

In 1975, Fishbein and Ajzen have developed a model of Reasoned Action that is used: (1) to predict an individual's intention and behaviour and (2) to identify those factors that determine intention. From this model Attitude can be determined by multiplying the salient beliefs by the evaluative aspects of the belief as presented in the equation below, equation 2-1: (Ajzen I. &., 1986).

$$\text{Attitude} = \sum_i b_i e_i$$

Equation 2-1

In the equation, b_i = perceived likelihood that the behaviour in question will result in some outcome and e_i = evaluation of that outcome. The Fishbein's model is concerned with the relations of beliefs to attitudes (Ajzen I. &, 1986).

2.2. THE SOUTH AFRICAN PHARMACEUTICAL MARKET

South Africa has the largest health care market in Africa, estimated to be worth approximately \$31.5 billion at the end of 2013. Health care spending in South Africa is expected to rise by an annual average of 8.8% in local currency terms between 2013 and 2017, with spending as a proportion of GDP remaining stable during the period, at 8.5% (Deloitte, 2014).

The South African pharmaceuticals market had total revenues of \$2.0bn in 2013, representing a compound annual growth rate (CAGR) of 7.3% between 2009 and 2013. The performance of the market is forecast to accelerate, with an anticipated CAGR of 8.3% for the five-year period 2013-2018, which is expected to drive the market to a value of \$3.0bn by the end of 2018 (Marketline, 2014).

The pharmaceutical industry contributed 1.58% to the South African GDP in the 2008/2009 financial year. The sector's revenue was R36.1-billion of which exports were R2.5-billion.. As a percentage of gross domestic product (GDP), healthcare expenditure amounts to approximately 8%, which is among the highest in the continent. The South African consumer spends approximately 1.9% of total household expenditure on medical and pharmaceutical products. In 2010, medical Consumer Price Index (CPI) growth overtook CPI growth, which means the cost of accessing medical care has become even more expensive (Health24, 2013).

It is expected there will be a significant increase in the total number of people on chronic medication by 2025, from 6,6 million using Actuarial Society of South Africa (ASSA) 2003 to 8,6-million people using ASSA 2008 (131% of the earlier estimate). This is made up of a 10% increase in those being treated for the 25 CDL chronic

diseases and a doubling of those needing anti-retroviral treatment (ARVs) (Health24, 2013).

The period between 2010 and 2015 will be the toughest for innovator companies. Many global blockbusters will lose their patent protection during this period. In 2010 products with an annual market value of R50 million lost their patent protection. The trend continued in 2011 where a further R40 million of branded products lost their patent protection and now faces generic competition (Health24, 2013).

According to IMS, 2014, Moving Annual Total (MAT), the South African pharmaceutical total private market worth more than R29 billion per annum with 4% growth (Table 2.1). The top three companies make 20% of the total market, with Aspen Primary Care, Sanofi-Aventis and Cipla-Medpro contributing 8.25%, 6.56% and 4.93%, respectively. The prescription drugs account for R20 billion (70%) of the total private market while the over-the-counter medicines account for R9 billion (30%). Originator or innovator drugs contribute R12.2 billion (61%), while generics contribute R7.1 billion (36%) to the prescription drugs rand value (IMS, 2014).

Table 2-1: The South African Pharma market, MAT

	R MAT /3/2 014 Ran k	R Month/3/2014	R Month/3 /2014 %PPG Previous Year	R Month/3 /2014 %VB	R MAT/3/2014	R MAT/3/2 014 %PPG Previous Year	R MAT/3/20 14 %VB
Selected Market		2,698,339,695	2.86%	100.00%	29,306,553,187	4.48%	100.00%
ASPEN P/CARE GEN	1	250,640,367	1.65%	9.29%	2,417,278,809	4.23%	8.25%
SANOFI-AVENTIS	2	186,846,335	1.69%	6.92%	1,923,259,898	-1.01%	6.56%
CIPLA-MEDPRO	3	116,322,911	-26.12%	4.31%	1,445,860,636	-2.06%	4.93%
MSD(PTY)LTD	4	104,903,418	-1.06%	3.89%	1,143,249,684	2.46%	3.90%
ASTRAZENECA	5	96,755,226	-1.29%	3.59%	1,086,800,302	-3.45%	3.71%
ADCO-GENERICS	6	105,012,848	21.41%	3.89%	1,028,201,622	5.14%	3.51%
PFIZER LABS	7	87,421,687	-2.54%	3.24%	981,946,778	-2.70%	3.35%
ASPEN GSK	8	80,146,230	4.22%	2.97%	929,533,934	1.64%	3.17%
ADCOCK OTC	9	85,604,522	5.27%	3.17%	833,667,752	-0.83%	2.84%
JANSSEN	10	65,367,656	2.29%	2.42%	811,417,584	5.56%	2.77%
ROCHE ETHICALS	11	71,516,878	6.14%	2.65%	798,992,629	1.80%	2.73%
BAYER PHARMA	12	68,076,025	3.74%	2.52%	767,537,922	4.11%	2.62%
NOVARTIS	13	61,464,693	-9.38%	2.28%	743,107,591	0.67%	2.54%
ASPEN P/CARE OTC	14	60,962,556	18.51%	2.26%	607,209,039	6.17%	2.07%
NOVO NORDISK	15	49,658,474	13.00%	1.84%	591,863,495	14.35%	2.02%
PHARMA DYNAMICS	16	61,268,524	26.44%	2.27%	584,304,401	17.61%	1.99%
SANDOZ SA (PTY)LTD	17	55,225,901	10.02%	2.05%	577,552,171	4.08%	1.97%
BOEHRINGER INGEL	18	44,502,320	5.35%	1.65%	474,149,729	9.64%	1.62%
LILLY	19	33,855,020	-3.23%	1.25%	420,920,016	-1.54%	1.44%
JOHNSON & JOHNSON	20	37,094,069	27.04%	1.37%	416,916,189	8.71%	1.42%
ABBVIE	21	30,684,927	-11.98%	1.14%	410,005,413	3.14%	1.40%
PHARMAPLAN	22	31,350,750	-14.72%	1.16%	373,290,376	17.58%	1.27%
ADCOCK PRESCRIPT	23	39,401,124	5.47%	1.46%	360,794,421	6.45%	1.23%
RANBAXY S.A.	24	33,120,498	15.97%	1.23%	360,208,870	7.38%	1.23%
MERCK PHARM	25	28,678,751	-17.65%	1.06%	358,480,631	5.83%	1.22%

Source: IMS, 2014

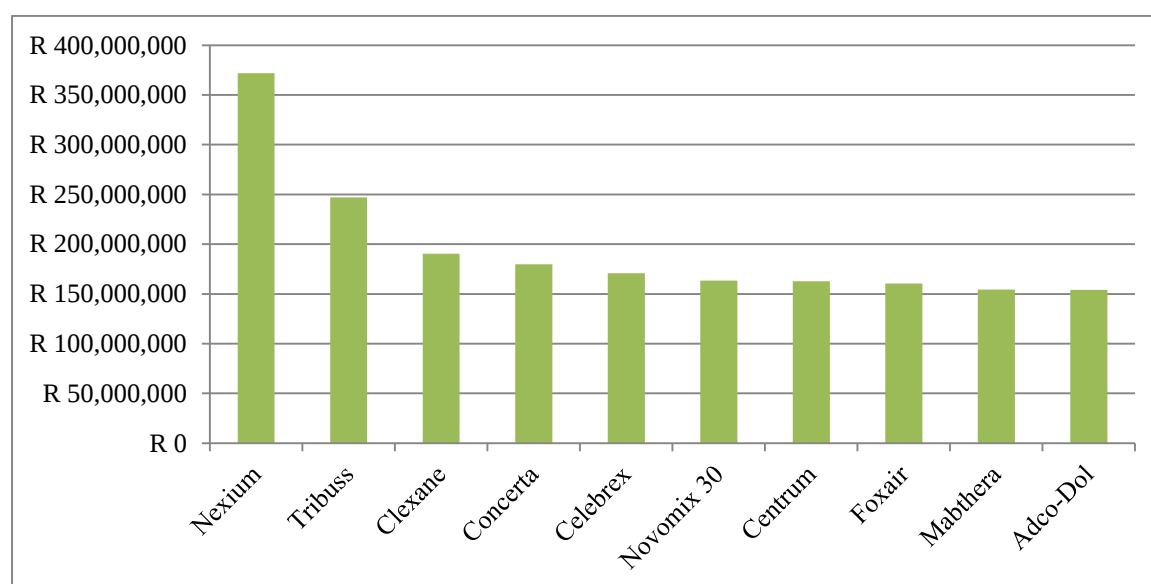
Generic medicines continue to drive the pharmaceutical growth in the South African market. Table 2.2 shows that generic products have grown by an average of 12.07% in the past 5 years compared to the innovator products which showed an average annual growth of 5.82%. 2013 has seen several losses of patents by major block busters like Crestor (Astra-Zeneca) and Cymbalta (Eli-Lilly) hence the negative growths of -3.45% and -1.54%, respectively. 2014 will also see several significant losses of patents by the number one product in the market (figure 2.1), Nexium (Astra-Zeneca) and number five product Celebrex (Pfizer). Nexium is the number one product in the country on sales rand value, with sales of around R370 million and Celebrex sales are at around R170 million per annum. Generic companies are therefore presented with an opportunity to produce these products at a lower cost.

Table 2-2: Rand MAT growth (March 2011-2014)

RAND MAT growths	R MAT/3/2011 %PPG Previous Year (Absolute)	R MAT/3/2012 %PPG Previous Year (Absolute)	R MAT/3/2013 %PPG Previous Year (Absolute)	R MAT/3/2014 %PPG Previous Year (Absolute)
NON GENERIC PRODUCTS	7.62%	4.71%	4.99%	1.96%
GENERIC PRODUCTS	16.13%	11.04%	12.60%	8.50%

Source: IMS, 2014

Figure 2-1: Top 10 products ranked on MAT Rand Value



Source: Adapted from IMS; MAT (2014)

Retail pharmacies are the major point of sale for the pharmaceutical market contributing 62% in units' value and 59% in rand value. Other forms of pharmacies are courier pharmacies or mail order who also contributes more than 20% in rand value. Medical practitioners contribute 16% in units' value but only 5.86% in rand value, mainly because most of the doctors do not dispense and those who dispense would use the cost effective generics available. Hospitals contribute 5% in units value and 12% in rand value (IMS, 2014).

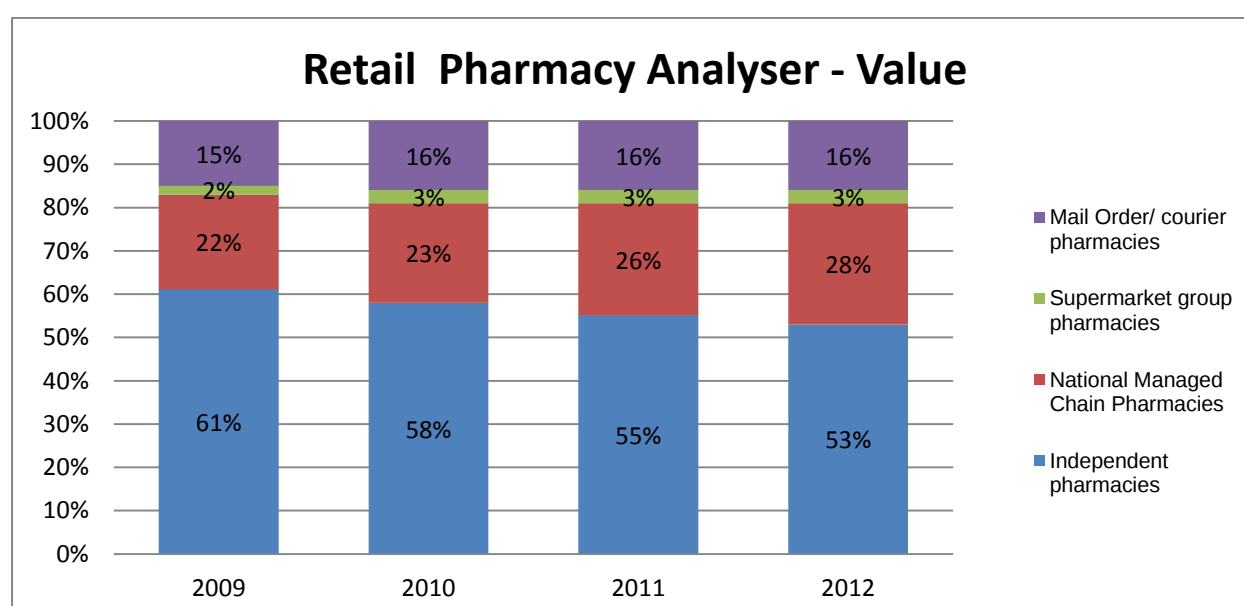
Table 2-3: Total Private Market contribution by customer type

TPM by Customer Type	UNITS 3-2014	RAND 3-2014
MEDICAL PRACTITIONERS	16.15%	5.86%
Non COLLABORATING WHS&MAIL ORDER	15.83%	22.01%
OTH PRIV RETAIL	0.48%	0.45%
PHARMACY	62.45%	59.45%
PRIV HOS&CLINICS	5.09%	12.23%

Source: IMS, March 2014

Among the retail pharmacies, the national managed pharmacies like Dischem and Clicks have grown by 6% since 2009, while the independent pharmacies and small independent groups declined by 8% on rand value (IMS Health, 2013).

Figure 2-2: Retail pharmacy and courier trade channel analyser - value



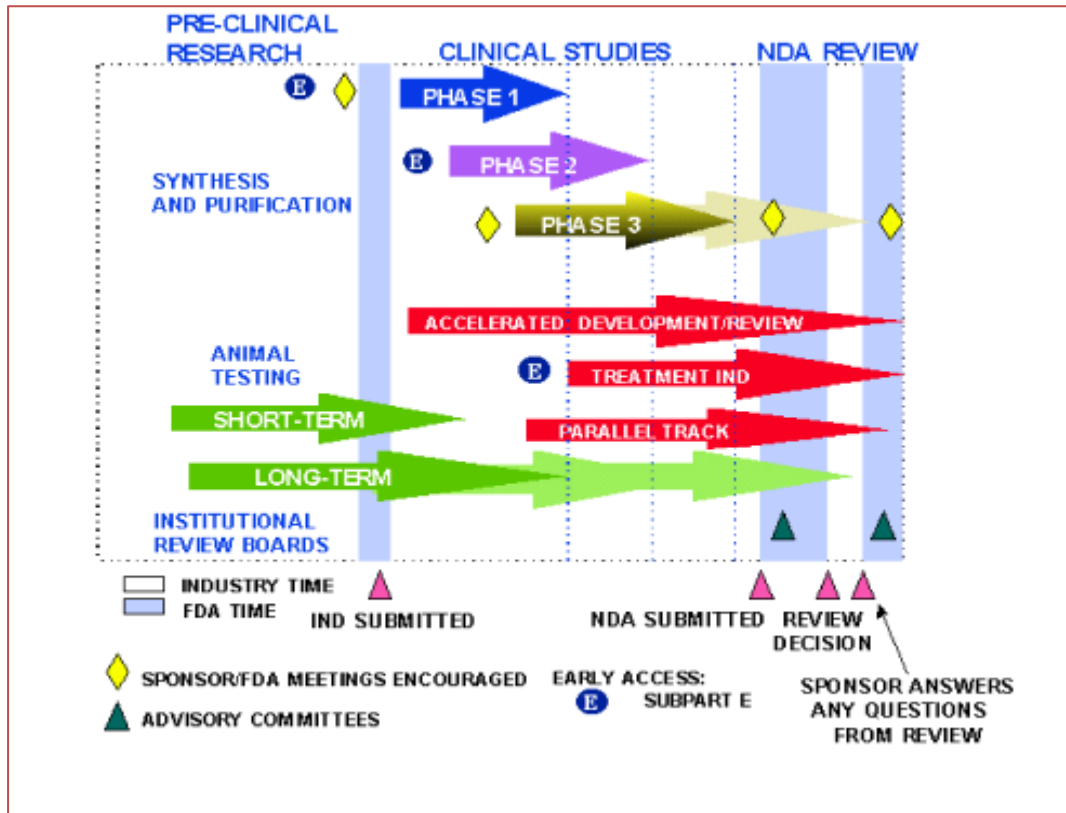
Source: Adapted from IMS Health, 2013

2.2.1. What are originator or innovator or branded Medicines

Originator or branded medicines are medicines that have been newly developed and subsequently patented by a pharmaceutical company. The process of bringing a newly patented medicine to the market requires a considerable research and development investment in terms of time and money (Figure: 2.3). Vast sums are put into research to identify new medicines and once these medicines are developed,

they are put through multiple phases of clinical trials to ensure that they are effective and safe for human use. The company then launches the new medicine as a novel brand and enjoy the monopoly of the sales of the medicine safeguarded by patent protection, which lasts for a number of years (Van der Merwe Smit, 2013).

Figure 2-3: The New Drug Development Process: Steps from Test Tube to New Drug Application Review



Source: FDA (2012)

New drugs development is a complex, long and costly process which can take 10-15 years with a cost of between US\$800 million to US\$2 billion. Research and Development (R&D) involves discovery (preclinical studies) and development (clinical studies) of New Chemical Entities (NCEs) also known as New Molecular Entities (NMEs). It is reported that of about potential 10 000 NCEs investigated, only 250 might make it to animal testing and approximately 5-10 of those will qualify for human testing. It is further reported that between 19% and 30% of Investigational New Drugs [INDs] that begin Phase 1 trials make it to market, meaning that only 1-2 of the original 10,000 NCEs will result in a marketable product (Dunne, 2013).

Given the risk of investment in new drug development the opportunity of selling the product in the absence of competition allows the company to recoup its investment and to enjoy substantial profits if the drug is successful. Patents are usually valid for 20 years but, owing to the long process required to bring a product onto the market, companies often only have about ten years in the market before the patent expires (Van der Merwe, Smit & Breytenbach, 2013: 101).

2.2.2. What are generic medicines

Generic medicine refers to an identical or bioequivalent medicine to a brand name medicine in dosage form, safety, strength, route of administration, quality, performance characteristics and intended use. Although generic drugs are chemically identical to their branded counterparts, they are typically sold at substantial discounts from the branded price. New drugs, like other new products, are developed under patent protection. The patent protects the investment in the drug's development by giving the company the sole right to sell the drug while the patent is in effect (FDA, 2014).

When patents or other periods of exclusivity expire, manufacturers can apply to the regulator (MCC in South Africa) to sell generic versions. The process does not require the drug sponsor to repeat costly animal and clinical research on ingredients or dosage forms already approved for safety and effectiveness.

Health professionals and consumers can be assured that FDA approved generic drugs have met the same rigid standards as the innovator drug. To gain FDA approval, a generic drug must:

- contain the same active ingredients as the innovator drug (inactive ingredients may vary);
- be identical in strength, dosage form, and route of administration;
- have the same use indications;
- be bioequivalent;
- meet the same batch requirements for identity, strength, purity, and quality; and
- be manufactured under the same strict standards of good manufacturing practice regulations required for innovator products (Food and Drug Administration, 2014).

2.2.3. South African Medicine Law

The concern over a continuous increase in health care cost is not unique to South Africa but a worldwide concern. The US healthcare system is quoted as to have saved a record \$239 billion in cost of medicines in 2013, helped by key patent expiries and increased generic entry. The saving in healthcare spending was the largest till date and was 14% up over the similar cost reduction in 2012 (Bloomberg, 2014).

In South Africa, several mechanisms were put in place to curb the increase in health care cost. In 1996, a National Drug Policy was developed in order to curb cost of pharmaceutical products as they contribute a significant portion (15.4%) to the total healthcare cost. At the present moment, the minister of health has instructed the Competition Commission to investigate the billing of private hospital groups.

The objectives of the National Drug Policy were to further develop the Generic Substitution Policy, which was aimed at increasing competition among generic drugs manufactures in order to reduce price. Great amount of focus was to fast track registration of generics for essential medicines; ensure quality of generic medicines and more importantly to make generic substitution at pharmacy level mandatory.

The Medicines Act (Medicines and Related Substances Control Act, No 101 of 1965 as amended by the Act 90 of 1997), state that:

- (1) A pharmacist or a person licensed in terms of section 22C (1) (a) shall–
 - (a) inform all members of the public who visit the pharmacy or any other place where dispensing takes place, as the case may be, with a prescription for dispensing, of the benefits of the substitution for a branded medicine by an interchangeable multi-source medicine, and shall, in the case of a substitution, take reasonable steps to inform the person who prescribed the medicine of such substitution; and
 - (b) dispense an interchangeable multi-source medicine instead of the medicine prescribed by a medical practitioner, dentist, practitioner, nurse or other person registered under the Health Professions Act, 1974, unless expressly forbidden by the patient to do so.
- (2) If a pharmacist is forbidden as contemplated in subsection (1) (b), that fact shall be noted by the pharmacist on the prescription.

- (3) When an interchangeable multi-source medicine is dispensed by a pharmacist he or she shall note the brand name or where no such brand name exists, the name of the manufacturer of that interchangeable multi-source medicine in the prescription book.
- (4) A pharmacist shall not sell an interchangeable multi-source medicine–
- (a) if the person prescribing the medicine has written in his or her own hand on the prescription the words “no substitution” next to the item prescribed;
 - (b) if the retail price of the interchangeable multi-source medicine is higher than that of the prescribed medicine; or
 - (c) where the product has been declared not substitutable by the council.

In order to counter all the barriers to the use of generic medicines require interventions to ensure that patients and consumers are informed of the existence of generic medicines and; prescribers and dispensers have incentives (or at least do not have disincentives) to supply these products. Possible interventions include the following:

- Increasing confidence in generics and promoting acceptance by professionals, patients, and the general community;
- Encouraging/requiring prescribers to prescribe generic medicines;
- Generic substitution by pharmacists;
- Incentives for wholesalers and retailers to supply generic medicines, for example, regressive mark-up schemes that allow greater margins for lower-priced products; and
- Selective financing of generic medicines, for example, by reimbursing all equivalent/similar medicines at the same price (Cameron et al., 2012).

From the Medicines and Related Substances Control Act, No 101 of 1965 as amended by the Act 90 of 1997, it is therefore mandatory for the pharmacists to inform the patients about the available cheaper generic alternatives, and if patient allows it, the pharmacist may change the patient to the generic. If the doctor feels that the patient has to use the original brand, he/she would write (in own handwriting) “No Substitution” on the script.

The National Drug Policy also led to the establishment of the price committee which is responsible for the medicine price register and approval of the price proposals from the manufactures. The policy further introduced the transparent Single Exit Price (SEP) of medicines and regulation of fees along the medicines supply chain (manufacture – wholesaler – distributor – pharmacy – patients) and reference pricing. Single Exit Price (SEP) is the medicine price which is determined by the manufacturer and decided the Department of Health after looking at a pricing basket of Canada, New Zealand, Spain, Australia and selecting the lowest price. The policy also terminated the perverse practices like volume discounts, rebates or bonuses.

The pharmacists were guided to calculate the single exit price as follows (Health-e, 2014):

- where the single exit price of a medicine or scheduled substance is less than R85.70, the dispensing fee shall not exceed R6.95 plus 46% of the single exit price in respect of that medicine or scheduled substance;
- where the single exit price of a medicine or scheduled substance is greater than or equal to R85.70 but less than R228.53, the dispensing fee shall not exceed R18.55 plus 33% of the single exit price in respect of that medicine or scheduled substance;
- where the single exit price of a medicine or scheduled substance is greater than or equal to R228.53 but less than R799.85, the dispensing fee shall not exceed R59 plus 15% of the single exit price in respect of that medicine or scheduled substance; and
- where the single exit price of a medicine or scheduled substance is greater than or equal to R799.85, the dispensing fee shall not exceed R140.00 plus 5% of the single exit price in respect of that medicine or scheduled substance

2.2.4. The role of pharmacists

Pharmacists have the authority and autonomy to manage medication therapy and are accountable for patients' therapeutic outcomes. Pharmacists are therefore obliged to communicate and collaborate with patients, care givers and other healthcare professionals regarding rational use of medications, including the

measurement and assurance of medication therapy outcomes (Albanese & Rouse, 2013:37).

Pharmacists as experts in medicine are also expected to be the most trusted and accessible source of medications and unbiased information regarding the safe, appropriate, and cost-effective use of medications (Albanese & Rouse, 2013:38).

Other pharmacy personnel are pharmacist assistants who work under direct or indirect supervision of the pharmacist. Pharmacist assistants are categorised into - learner basic (PALBs), basic (PABs), learner post basic (PALPB) and post basic (PAPB). The latter may prepare the prescription provided it was evaluated and initiated by the pharmacist. The pharmacist assistant post-basic may explain the benefits of generic substitution to a patient. However, a pharmacist must be involved in the final substitution decision on which medicine should be dispensed to the patient (Osman, 2014).

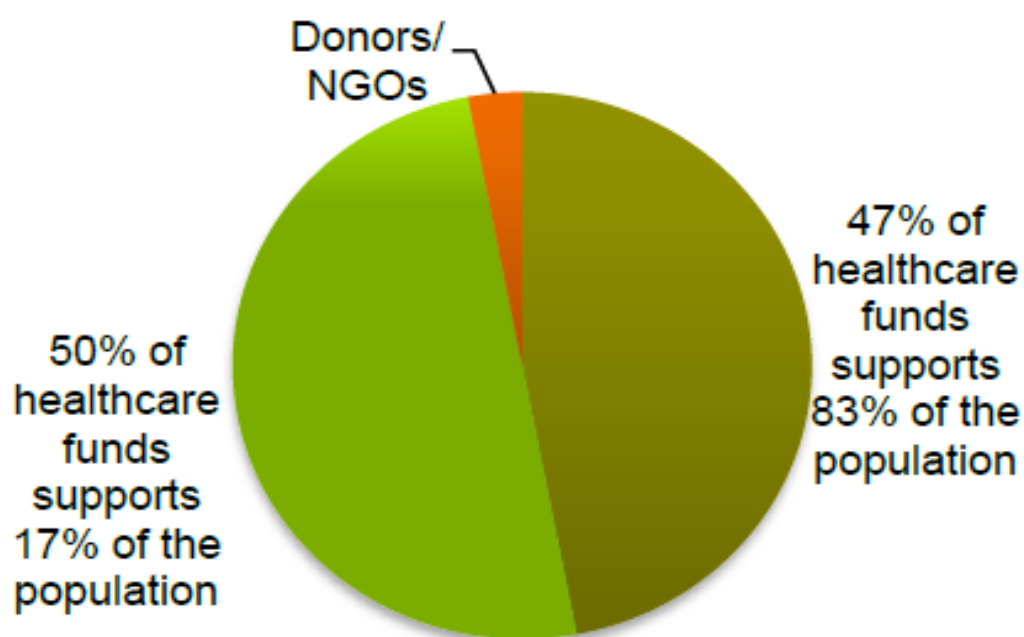
2.2.5. The role of Medical Aids or Schemes

Private medical schemes expenditure is 50% of the total South African healthcare expenditure, while covering only 17% of the population. The government has voiced concern in this regard, with public statements such as: *“The amount spent in the private health sector relative to the total number of people covered is not justifiable and defeats the principles of social justice and equity”* (Econex, 2013).

It is further estimated that the private health care serves additional 17% -27% of the population through the out-of-pocket payment. The expenditure through the out-of-pocket payment is estimated to be R18.2 billion, which makes the private health care to account for 28% – 38% of the population.

The past twelve years have seen a 24% increase in medical scheme membership increased by 24% but due to the population growth, the membership has remained within the range of 14.8% – 17% of the population. Medical scheme membership may be split by open scheme membership and restricted scheme membership. In 2012/13, 54.8% of members were in open schemes and 45.2% were in restricted schemes. This distribution has changed over time (Econex, 2013).

Figure 2-4: Health care funding in South Africa



Source: Adapted from Econex, 2014

According to the 2013 Annual Report of the Council for Medical Schemes as quoted by the National Association of Pharmaceutical Manufacturers (NAPM) CEO, 2014, 2014, the medicine expenditure by medical schemes was R16.3 billion which is about 15% of the total cost, while hospitals and specialists account for 35% and 22.7%, respectively.

Generics medicines account for 35.7% of the prescription market, while the originator or innovator medicines accounts for 61.3% in Rand value. When one looks at units or volume of products the market share of innovator products is at 35.8% versus the generic volume of 63%. That put an average price of a generic drug at R72.53, while an innovators drug at R218.86 (NAPM, 2014).

In line with the government strategy of reducing the healthcare cost, medical schemes have also engaged in the strategies to drive the use of cost effective drugs. One of those strategies is the use of the MMAP® (Maximum Medical Aid Price), which is a reference price model that serves as a guide to determine the maximum medical scheme price that medical schemes will reimburse for an interchangeable multi-source pharmaceutical product (Medikredit, 2014). Other medical schemes like

Liberty would use the generic reference pricing, which is the maximum amount that a scheme will pay for medicines contained within generically similar groupings and is a tool used to balance scheme financial risk with patient access to medicines (Liberty Medical Scheme, 2014).

2.3. FACTORS AFFECTING GENERIC MEDICINES USE

2.3.1. Innovator drug companies

Some innovator companies introduce pseudo-generics before the loss of patent. These are not copies of the original drug but rather the exact replica of the original, manufactured by the same company, using the same ingredients in the same way as the original. Pseudo-generics are introduced to pre-empt competition from independent generic companies and are made and marketed by another division of the same company or are distributed by another company under licence (Lexchin, 2004).

Pharmaceutical marketing is very competitive and uses mostly evidence based medicine to communicate features and benefits. The efficacy and safety data of the products are obtained through the clinical trials which were done by the originator companies. The National Association of Pharmaceutical Manufacturers (NAPM, 2014), in his presentation highlighted that one of the strategies adopted by the innovator companies is the fear factor. This was further illustrated with an example where medical representative would merely say to the doctor *“if your child was suffering from a life threatening disease like meningitis, would you gamble on the generic drug to treat him”*. In a case like that a doctor would be encouraged to write No Substitution on the prescription to stop the pharmacist from substituting.

Shrank et al. (2011) found that most of the doctors who had negative perceptions about generics also stated that they learn about generic availability from pharmaceutical manufacturer representatives raises important questions and suggests that new approaches to physician education that are likely to be less biased and more objective may enhance cost-effective medication use.

Chua et al. (2010) also reported doctors' dependency on the representatives for the information about the medicines. Since in the survey doctors reported the need for more information on the issues pertaining to the safety and efficacy of generic

medicines which is vital for confidence in generic medicines; the kind of information they would get will depend on the kind of representative the doctor will ask.

2.3.2. Patients

Patients' perceptions on the generic medicines are very important in determining the acceptance and use. As stated in the Medicines and Related Substances Control Act, No 101 of 1965 as amended by the Act 90 of 1997 that the pharmacists should inform the patient about the cheaper alternative and may substitute the branded drug with a cheaper generic if a patient allows it. Chong (2010) reported that patients in the cities (high socioeconomic status) perceived generics as cheaper imitations with less efficacy therefore rejects substitutions, while patients in the outlying areas (lower socioeconomic status) preferred generics because of the lower price.

2.3.3. Pharmacists

In most of the literature pharmacists were comfortable with the use of generics, especially in countries like South Africa where generic substitution is mandatory by legislation. Challenges highlighted by pharmacists were patient consent and supply reliability by generic companies. Other reported concerns were about reduction in efficacy of treatment resulting from the substitution of specific medicines such as Dry Powder Inhalers and concerns about potential confusion by the elderly from differing brands (Chong et al. 2010:69).

2.4. CONSUMER BUYING BEHAVIOUR

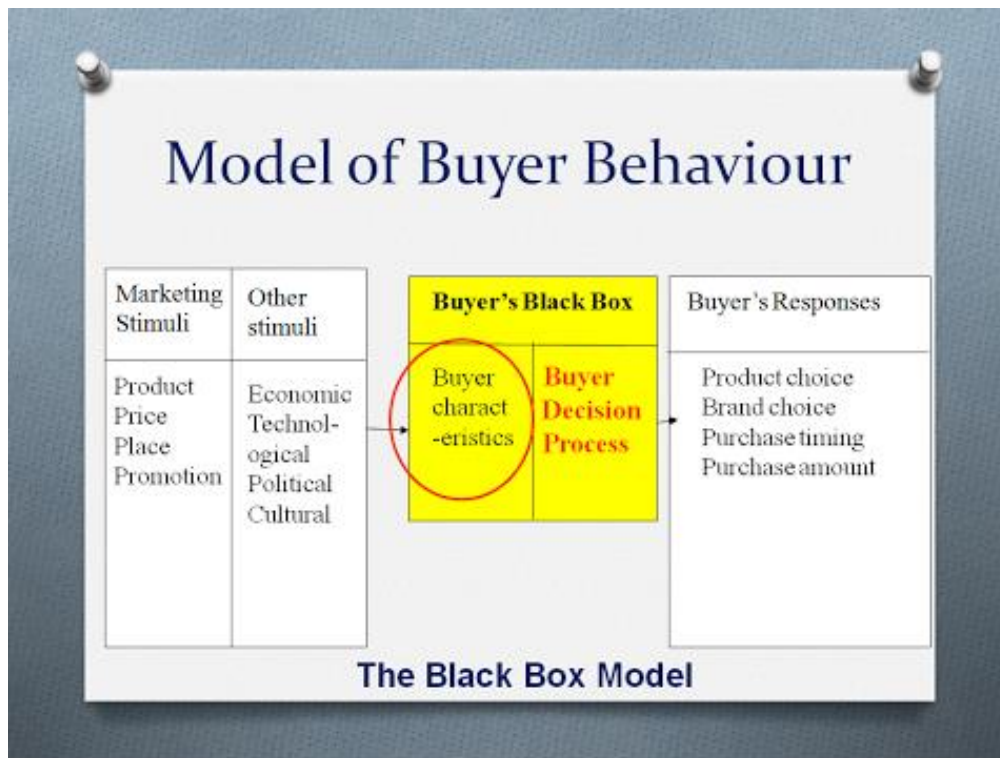
2.4.1. Consumer behaviour overview

Consumer behaviour has always been of great interest to marketers. The knowledge of consumer behaviour helps the marketer to understand how consumers think, feel and select from alternatives like products, brands and the like and how the consumers are influenced by their environment, the reference groups, family, and salespersons and so on (Brosekham & Velayutham, 2013:11).

Consumer behaviour can be defined as the actions individuals, groups, or organisations take in purchasing, selecting, securing and using products or services to satisfy needs (Kerin, 2007). The actions are affected by environmental factors the consumer is exposed to (Figure 2.4), which include marketing stimuli (product, price, place and promotion) and other stimuli (economic, technological, social and cultural). In this information age, consumers are continuously exposed to marketing

information about different products, it is therefore crucial to determine the impact of this information on decision-making (Kotler & Armstrong, 2012).

Figure 2-5: Buyer behaviour model

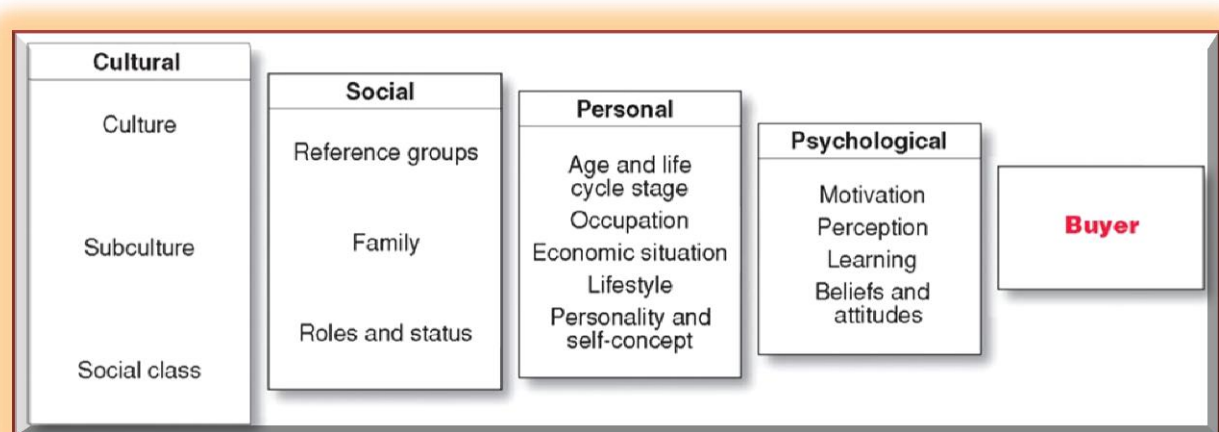


Source: Adapted from Kotler & Armstrong (2012)

The buyer's black box, which includes the buyer characteristics and the actual buying process, is the main area of interest for the marketers. Marketers are more interested in how the stimuli enter the black box, how they are interpreted or perceived depending on the buyer's characteristics and the impact of that interpretation on the actual buying decision process.

The buyer black box comprises buyer characteristics as well as buyer decision-making process (Figure 2.4). The buyer characteristics which influence the buying behaviour are generally classified into cultural, social, personal and psychological (Figure 2.5). The buyer decision-making process comprises five stages which are need recognition, information search, evaluation of alternatives purchase decision and post purchase behaviour.

Figure 2-6: Factors influencing consumer behaviour



Source: Adapted from Kotler, 2012

2.4.1.1. Cultural characteristics

Culture refers to the set of basic values, perceptions, wants, and behaviours learned by member of society from family and other important institutions. Each culture contains subcultures which are people with shared values system based on common life experiences and situations, like religious groups, geographical regions and so on (Kotler & Armstrong, 2012). For example, the buying behaviour for generic and innovator medicines would be different between the urban and rural market. Consumers in the rural areas would mostly take cost into consideration than their urban counterparts who would look into quality, value for money, status and more.

2.4.1.2. Social characteristics

Just like the cultural characteristics of the consumer, social characteristics are based on small groups in the communities where members influence one another and through the word of mouth influence what the members buying behaviour are. The groups are usually referred as the reference groups and they usually have opinion leaders who exert influence on the members because of special skills and knowledge (Kotler & Armstrong). These groups are also formed along the socio-economic status where the wealthy will stick together and would buy according to their social status. In medicine buying behaviour, individuals of higher socio-economic status would more likely reject the cheaper generics compared with individuals of lower status.

2.4.1.3. *Personal characteristics*

Demographic variables such as gender, age, stage of life, income, education, and marital status plays a very important role in the buying behaviour. One's income as an example will have an impact on the kind of product one buys. A person with no income to less income will buy differently from the one with millions. That will also be the case comparing the buying behaviour of a single person without family versus a married couple with children.

Personality describes a person's disposition, helps show why people are different, and encompasses a person's unique traits. The "Big Five" personality traits that are frequently discussed include openness to new experiences, conscientiousness, extraversion, agreeableness and neuroticism. Evidence of linking the above personality to a buying behaviour is still not clearer. Instead self-concept (self-image), which is more about how an individual sees him/herself has been linked with buying behaviour, where individuals buy products which are associated with their image. Most of the companies have used celebrities like prominent sports people, film stars and models to be the face of their brands (Tanner, 2012). In terms of medicines, which cannot be advertised directly to the public, most of the branded medicine companies targets both the pharmacists and doctors to encourage them to drive the originators products. In some cases doctors are encouraged to write 'do not substitute" on their prescriptions.

2.4.1.4. *Psychological characteristics*

Consumer buying behaviour is also influenced by four major psychological factors, which are motivation, perception, learning, and beliefs and attitude (Kotler, 2012). Motivation is referred to as a need that is sufficiently pressing to direct the person to seek satisfaction of the need. Motivation is mainly explained using two main theories by Sigmund Freud (assume people are unconscious about the forces driving their behaviour) (Kotler, 2012, p. 159). and Abraham Maslow represented (that people have to fulfil their basic needs - food, water, and sleep - before they can begin fulfilling higher-level needs) (Tanner, 2012).

Perception is how one selects, organises, and interprets the information around him/her to form a meaningful picture of the world. Perceptions are formed through three perceptual processes, which are:

- Selective attention is the process where one filters out information based on how relevant it is to him/her.
- Selective retention is the process where one forgets information more often the information that contradicts his/her belief despite its relevance.
- Selective distortion or misinterpretation of the intended message is a process where a person interprets information in a way that it will support their belief (Kotler & Armstrong, 2012).

Learning refers to a relative permanent change in individual's behaviour arising from experience, which occurs through interplay of drives, stimuli, cues, responses and reinforcement (Kotler & Armstrong, 2012).

Attitude and belief are some of the internal environmental factors that can affect a person's decision to purchase the product. Belief is a descriptive thought that a person has about something. Belief may be on real knowledge, opinion or faith based and may or may not carry an emotional charge (Kotler & Armstrong, 2012).

Consumer attitude is a response or assessment given by consumers consistently, favourable or unfavourable, positive or negative, like it or not, agree or not to an object. Attitudes have significance role in making marketing decisions and there is a strong tendency to assume that this attitude as the most powerful factor for predicting the future behaviour and can help companies predict product demand and to develop appropriate marketing programs. One's attitude toward the product attributes may vary due to the belief and evaluation of the product attributes (Ramdani et al., 2102:35).

2.4.1.5. *Belief and Attitude*

Attitude can be divided into two types, which are general attitudes toward physical objects and general attitude towards behaviour. The determinants of specific behaviours is guided largely by a reasoned action approach that assumes that people's behaviour follows reasonably from their beliefs, attitudes, and intentions (Ajzen & Fishbein, 2005:174).

Attitude can also be explained from explicit and implicit point of view, where an explicit attitude refers the kind of attitude that one deliberately thinks about and reports it, while the implicit would be those positive and negative evaluations that that occurs subconsciously outside one's control. The measure or evaluation of the attitude using self-reported answers to an attitude questionnaire should not be viewed as attitudes per se, but as the verbal expressions of the attitude made with caution and following careful consideration, without time pressure, and beyond the influence of evaluative associations that might exist in memory. Thus, explicit measures do not capture the associative and automatic character of attitudes which are initiated spontaneously. Implicit measures of attitude aim to provide a better estimate of the attitude stored in memory than is possible with explicit measures. Implicit measures of attitude seek to tap both associative and automatic dimensions of attitude through indirect methods of measurement (Ackermann & Palmer, 2014:529).

The followings have been identified as the characteristics of attitude (Ramdhani, 2012):

- *Attitude Has Object* – meaning the consumer attitudes should be connected to the object, the object may be connected to a variety of consumer and marketing concepts such as products, brands, advertising, pricing, packaging, media and so on. In order to determine the consumer attitude one must clearly define what the attitude is against.
- *Attitude Consistency* – meaning attitude will always be reflected by one's behaviour as it is a picture of one's feelings.
- *Attitude can be Positive, Negative, and Neutral* – meaning someone may like something (positive) and do not like something (negative) or did not even have an attitude (neutral).
- *Attitude Intensity* also called the characteristic attitude of the attitude extremity – measure the degree of liking for the product,
- *Resistance Attitude* – explains how difficult will it be to change the current attitude.
- *The persistence of Attitude* - a characteristic attitude illustrating that attitude will change as time passes.

- *Beliefs Attitudes* - consumer confidence is the belief of the truth of the attitude he had.

Attitude can be analysed by looking at its three components which are (Ramdhani, Alamanda & Sudrajat, 2012:34):

- Cognitive component (knowledge) which is associated with trust (belief), ideas and concepts, such as knowledge about an object, beliefs about the object or evaluative beliefs.
- Affective component (emotional) which involves one's emotional life such as feeling happy or unhappy about a situation, object, person or concept.
- Conative component (behavioural tendencies) which is a tendency to behave or will behave to an object.

Ramdhani et al. (2012) further looked at the four functions of attitude as follows:

- Benefits: indicating that an individual will form a positive attitude toward things that bring in profits and predicted negative shape attitudes toward the things that harm.
- Ego defence: when individuals experience things that are not desirable and is considered to threaten the ego, or to know the facts and truth are not expected, then attitude can serve as an ego defence mechanism that will protect him from the bitterness of that reality.
- Value Statement: attitude is a statement of values or a reflection of the values, lifestyles, and the general view of consumers. In this function it states that a person often has a certain attitude to obtain satisfaction in stating the value that was followed in accordance with the personal and the concept itself.
- Knowledge: the individual usually has a strong need to know and understand people or things associated with them.

Other scholars in the study of consumer buying behaviour have adopted different approaches which are based on different traditions of psychology, social psychology, and sociology. Writers suggest different typological classifications of these works with five major approaches emerging. Each of these five approaches posits alternate models of man, and emphasise the need to examine quite different variables (Bray, 2008).

- **Economic Man:** The economists were the first to dominate model building, in the area of buying behaviour. The early economic view considered consumer behaviour in terms of a single act of purchase itself, and post-purchase reactions. Economic theory holds that purchasing decisions are the result of largely “rational” and conscious economic calculations. Thus, the individual buyer seeks to spend his income on those goods that will deliver the most utility (satisfaction) according to his tastes and relative prices (Brosekhan & Velayutham, 2013:9).
- **Psychodynamic:** The psychodynamic approach includes all the theories in psychology that see human functioning based upon the interaction of drivers and forces within the person, particularly unconscious, and between the different structures of the personality (McLeod, 2007). The key principle of the psychodynamic approach is that behaviour is determined by biological drives, rather than individual cognition, or environmental stimuli (Bray, 2008)
- **Behaviourist:** Behaviourist approach is based on the fact that human behaviour in general is depended on the external events, and importantly, a specific pattern of behaviour can be learned because of external factors (Dudovski, 2013). The behaviourists approach the consumer, as a “black box” and thereby assume that consumer behaviour is a conditioned response to external events. The behavioural perspective therefore focuses on external environmental cues (such as advertising) that stimulate consumer response through learning. The strategic emphasis, of the behavioural modification theories, that can be used to influence, modify, and control consumer behaviour (Brosekhan & Velayutham, 2013:11).
- **Humanistic:** The humanistic approach is a multi-disciplinary approach also known as “consumer culture theory” focused on a distributed view of cultural meaning, one created, sustained, and transformed by larger social and cultural forces such as myths, narratives, and ideologies (Joy & Li, 2012:147).
- **Cognitive:** The cognitive approach to consumer behaviour perceives individuals as ‘information processors’ acknowledging the impact of environment and social experience in the processing of information. The development of cognitive psychology in general is credited with the introduction of Stimulus-Organism-Response model in 1950s. According to the Stimulus-Organism-Response

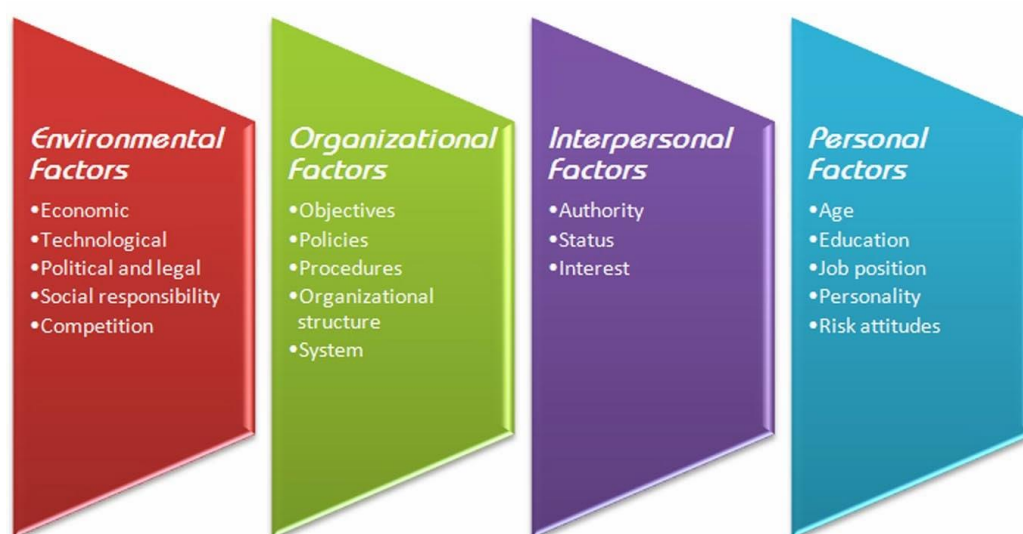
model, figure 2.4 there is a linear relationship between the impact of stimuli on inactive organism, and as a result of the impact the organism responds in a certain manner (Dudovskiy, 2013).

2.4.2. Organisational consumer behaviour

The Organisational consumer is a consumer who buys on behalf of an organisation rather than buying for personal consumption. Generally, organisational customers are not considered end-users, but rather have been primarily seen as raw material or inventory purchasers (Ozmen, Oner, Khosrowshahi & Underwood, 2013:2019).

Organisational buying behaviour is a complex process involving many people, multiple goals and potentially conflicting decision criteria (Webster & Wind, 1997:53) and is often supposed to be rational and less emotional. Unfortunately, the buyer and decision-makers are human beings who will not only be affected by factors affecting an organisational buying process but also those affecting an individual consumer (Blythe, 2013). Members of the buying centres are motivated by a complex interaction of individual and organisational goals, where some organisations influence the buying centre through the subsystems of tasks, structures like, authority, status, rewards and work flow; technology and people (Webster & Wind, 1997:56).

Figure 2-7: Factors influencing the organisational buying behaviour



Source: Kotler & Armstrong (2012).

In general, organisation consumer buying behaviour can be influenced by the following factors as outlined in Figure 2.6:

- **Environmental factors** include physical (such as the geographic or climate factors) economic, political, legal, cultural factors which are exerted via variety of institutions like businesses (suppliers, competitors, and customers), governments, trade unions, political parties, trade associations, and professional groups. The impact of all these factors varies from country to country but their influences can be classified into four major distinct ways (Webster Jr, 1997; Kotler & Armstrong, 2012).

In the case of pharmacy practice the government have put together the medicine act to direct the conduct of pharmacists in treating the patients. The economic impact of unemployment levels determines the number of patients who can afford premium medicines and who cannot. Level of competition among generic companies as well as among generics and originator companies also play a very significant role on pharmacists' choice of a generic medicine.

- **Organisational structure:** The formal organisational structure consists of sub-systems of communication, authority, status, rewards, and work flow-all of which have important task and non-task dimensions (Kotler & Armstrong, 2012). These are mainly internal factors outlining the organisational goals, objectives, internal policies and procedures and systems. In the pharmacy practice this can be observed more in the chain pharmacies where the head office could sign a deal with a supplier and it will affect all the outlets.
- **Interpersonal:** Sometimes referred as the buying centre, it refers to that group of decision-makers within an organisation consisting of users, influencers, deciders, buyers and gatekeepers. *Users* will use the purchased products and services, *Buyers* have formal responsibility and authority for contracting with suppliers, *Influencers* influence the decision process directly or indirectly by providing information and criteria for evaluating alternative buying actions, *Decider* have the authority to choose among alternative buying actions and *Gatekeepers* control the flow of information (and materials) into the buying centre (Kotler & Armstrong, 2012).

In most of the independent pharmacies, one person perform all the roles above, while in chain store pharmacies different people perform different roles with the

pharmacist as the user. Buyers will place orders with different companies depending on the instructions of the decider. If, for instance, one company has a deal with that pharmacy group, most of its products will be pushed over the competitor's products.

- **Personal:** Only the individual as an individual or as a member of a group can define and analyse buying situations, decide, and act. In this behaviour, the individual is motivated by a complex combination of personal and organisational objectives, constrained by policies and information filtered through the formal organisation, and influenced by other members of the buying centre. Most marketing efforts target individuals as they are an important part of the organisational buying process. Despite being part of the buying centre which is bound by the formal organisation structures, organisational buyer's personality, perceived role set, motivation, cognition, and learning are the basic psychological processes that affect his response to the buying situation and marketing stimuli provided by potential vendors (Webster & Wind, 1997:55).

In light of the above, in the health care/pharmaceutical sector, pharmacists are obliged by the law to use the generics, while funders use level of funding to compel the patients to use cheaper alternatives by introducing the systems of co-payment. In some cases funders use the points systems to encourage the healthcare professionals to use cheaper alternatives.

Pharmacies, depending on the type may differ in terms of the personal influence on the buyer behaviour. Major chain-stores and hospital pharmacies may be greatly influenced by the external factors environmental and organisational; while independent pharmacies' (single or multiple-stores) buying behaviour may be influenced more by internal factors like interpersonal and personal. Just like small-medium enterprises' (SMEs) buying behaviour as studied by Ozmen et al. (2013), pharmacists in an independent pharmacies (who are usually owners of the store), are the main decision-makers with high level of perceived control than those in a corporate structure like the chain-store pharmacy.

2.5. APPLICABLE THEORIES AND MODELS

2.5.1. Overview of theories and models

Most of the public health interventions often seek in some way to change individual and population knowledge, attitudes and behaviours related to health practices. Psychologists first began to study the determinants of health related behaviours in the nineteenth and early twentieth centuries. Principal areas of investigation included the processes of social learning and the relationship between knowledge, attitudes and behaviours. Although at that time there was a frequently made assumption that much human behaviour is innate or driven by unconscious forces, many authorities active in the health arena appeared to assume that peoples' health behaviours are normally consistent with their observed attitudes (Taylor et al. 2006).

Most health behaviour and health promotion theories were adapted from the social and behavioural sciences, but applying them to health issues often requires that one be familiar with epidemiology and the biological sciences. Health behaviour and health promotion theories draw upon various disciplines, such as psychology, sociology, anthropology, consumer behaviour, and marketing (U.S. Department of health and human services: National Institutes of Health, 2005).

A theory presents a systematic way of understanding events or situations. It is a set of concepts, definitions, and propositions that explain or predict these events or situations by illustrating the relationships between variables. Models may draw on a number of theories to help understand a particular problem in a certain setting or context. They are not always as specified as theory.

Most of the models were developed with the aim of understanding individual and community behaviour with the ultimate goal of changing the behaviour to a desired behaviour. The current study seeks to determine the attitude towards generics by pharmacists in order to change behaviour to a pro-generic one which will see pharmacists encouraging and educating the patients to use generic medicines in order to reduce cost.

The individual level is the most basic one in health promotion practice, so individuals are often the primary target audience for health education materials. Because

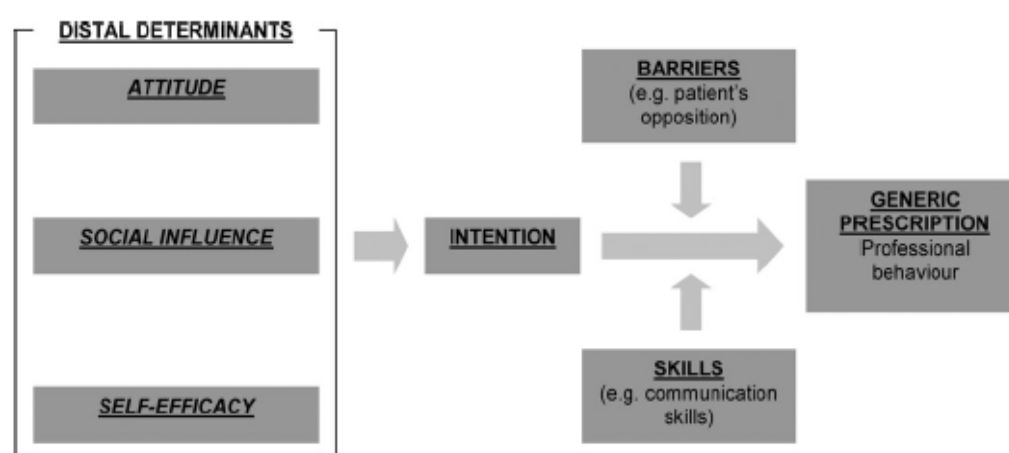
individual behaviour is the fundamental unit of group behaviour, individual-level behaviour change theories often comprise broader-level models of group, organisational, community, and national behaviour. Individuals participate in groups, manage organisations, elect and appoint leaders, and legislate policy. Thus, achieving policy and institutional change requires influencing individuals (U.S. Department of health and human services: National Institutes of Health, 2005).

2.5.2. Attitude/Social Influences/Self-Efficacy model (ASE Model)

The Attitude/Social Influences/Self-Efficacy model (ASE Model), as presented in figure 2.8 proposes that much behaviour are determined by a person's intention to perform the behaviour. Intention is in turn predicted by three core predictors: Attitudes, Social Influences and Self-Efficacy (Rodríguez-Calvillo et al., 2011:178).

Attitudes refer to anticipated or actual experiences of the advantages and disadvantages of performing the behaviour. Social Influences focus on direct social influences such as how important people will feel about the subject performing the behaviour. Self-efficacy focuses on people's beliefs regarding their ability to behave in the way they want to behave in relation to the behaviour (Rodríguez-Calvillo et al., 2011:179).

Figure 2-8: Attitude/Social Influences/Self-Efficacy model (ASE Model)



Source: (Rodríguez-Calvillo et al., 2011:180)

According to the ASE-Model, an intention to substitute does not guarantee substitution. The model takes into consideration the barriers like patients' acceptance or decline of the substitution, doctor written 'do not substitute', or even

supply issues. The model further includes other factors like skills, which in this case would mean a pharmacist or assistant with knowledge and skills to educate the patients or convince the doctor to accept substitution will have a positive influence on the shift from the intention to substitute to the actual act of substituting.

2.5.3. The Expectancy-Value Model

The expectancy–value (EV) model of attitude formation state that a person’s attitude toward an object is determined by the subjective values or evaluations of the attributes associated with the object and by the strength of these associations. Meaning, the evaluation of each attribute contributes to the attitude in direct proportion to the person’s subjective probability that the object possesses the attribute in question (Ajzen & Fishbein, 2008:2223). The EV model equation is presented in equation 2-2, where A_B represent the attitude toward performing Behaviour B, b_i represent the strength of the belief (i.e., the subjective probability that performing the behaviour will lead to Outcome i), e_i is the evaluation of Outcome i , and the sum is over all outcomes considered (Ajzen & Fishbein, 2008:2223).

$$A_B \propto \sum b_i e_i$$

Equation 2-2

The EV model is based on the assumption that the attitude toward behaviour is determined by salient beliefs regarding the consequences of performing the behaviour, each belief multiplied by the subjective value of the consequence in question (Ajzen & Fishbein, 2008:2225).

2.5.4. Theory of Reasoned Action (TRA)

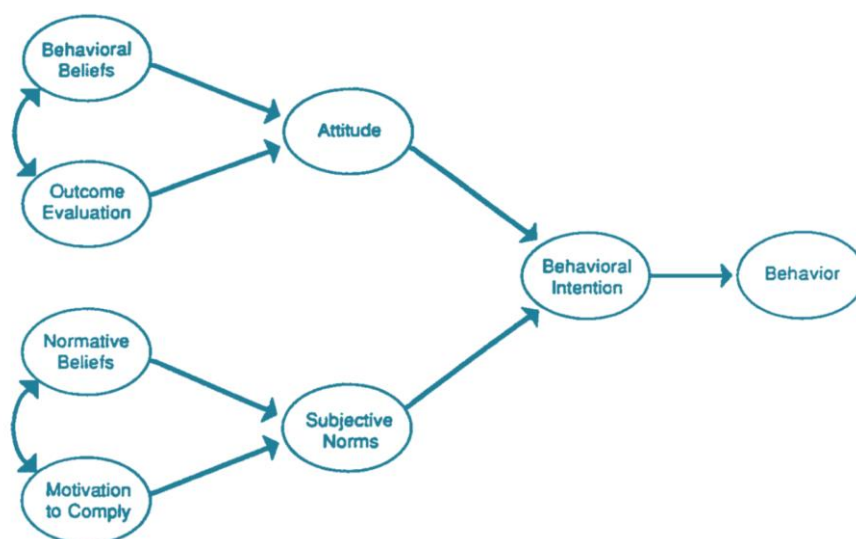
The most active areas of attitude research over the past two decades have involved the theory of reasoned action and its extension, the theory of planned behaviour (French et al., 2005:1825). According to the Theory of Reasoned Action (TRA) the immediate antecedent of any behaviour is the intention to perform the behaviour in question. The stronger a person’s intention, the more the person is expected to try, and hence the greater the likelihood that the behaviour will actually be performed (Ajzen & Fishbein, 2008:2226). If the pharmacists has stronger intentions to

substitute branded medicines for generics he/she will use all the opportunities available to try and will actually substitute.

The theory specifies two conceptually independent determinants of intention, which are attitude towards the behaviour and subjective norm (Fig 2.8). Attitude (a personal factor) toward the behaviour and refers to the degree to which a person has a favourable or unfavourable evaluation of the behaviour in question. The model focuses further on the two components of attitude. The affective component (feelings) of attitude refers to emotions and drives engendered by the prospect of performing a behaviour which is in contrast to second component, the instrumental component of attitude (behavioural belief), which refers to a more cognitive consideration of the extent to which performing behaviour would be advantageous (French et al., 2005:1827). In this study a pharmacist with a positive evaluation on the use of generic drugs will most likely give a positive recommendation.

Subjective norm (a social factor) refers to the perceived social pressure to perform or not to perform the behaviour. Subjective norm is most linked to the common practice in the pharmacy where if the leaders in the pharmacy give positive recommendations about the use of generics, most of the pharmacists will follow. Attitude and subjective norm, each weighted for its relative importance, are assumed jointly to determine behavioural intention (Ajzen & Fishbein, 2008:2225).

Figure 2-9: Theory of Reasoned Action (TRA)



Source: Adapted from Ajzen & Madden (1986:455)

The theory of reasoned action also deals with the antecedents of attitudes and subjective norms, antecedents which in the final analysis determine intentions and actions. At the most basic level of explanation, the theory postulates that behaviour is a function of salient information, or beliefs, relevant to the behaviour. Two kinds of beliefs are distinguished, behavioural beliefs which are assumed to influence attitudes toward the behaviour, and normative beliefs which constitute the underlying determinants of subjective norms. Each behavioural belief links the behaviour to a certain outcome, or to some other attribute such as the cost incurred by performing the behaviour. The outcome's subjective value then contributes to the attitude toward the behaviour in direct proportion to the strength of the belief, that is, the subjective probability that performing the behaviour will lead to the outcome under consideration. To obtain an estimate of attitude, belief strength is multiplied by outcome evaluation, and the resulting products are summed across all salient behavioural beliefs (Ajzen & Madden, 1986:454).

Normative beliefs, on the other hand, are concerned with the likelihood that important referent individuals or groups would approve or disapprove of performing the behaviour. The strength of each normative belief is multiplied by the person's motivation to comply with the referent in question, and an estimate of subjective norm is obtained by summing the resulting products across all salient referents (Ajzen & Madden, 1986:456).

The theory of reasoned action had experienced challenges which are related to the transition from verbal responses to actual behaviour. A strong association between intention and the actual behaviour was found to be dependent on the following three prerequisites:

- The measure of intention must correspond in its level of generality to the behavioural criterion, meaning, in order to predict the level of use of generic medicine by a pharmacists, one needs to assess the level of intention to use the generics.
- The intention must not have changed in the interval between the assessment and the behaviour observation time. The longer the time interval, the more likely is occurrence of unforeseen events that may change the intention.

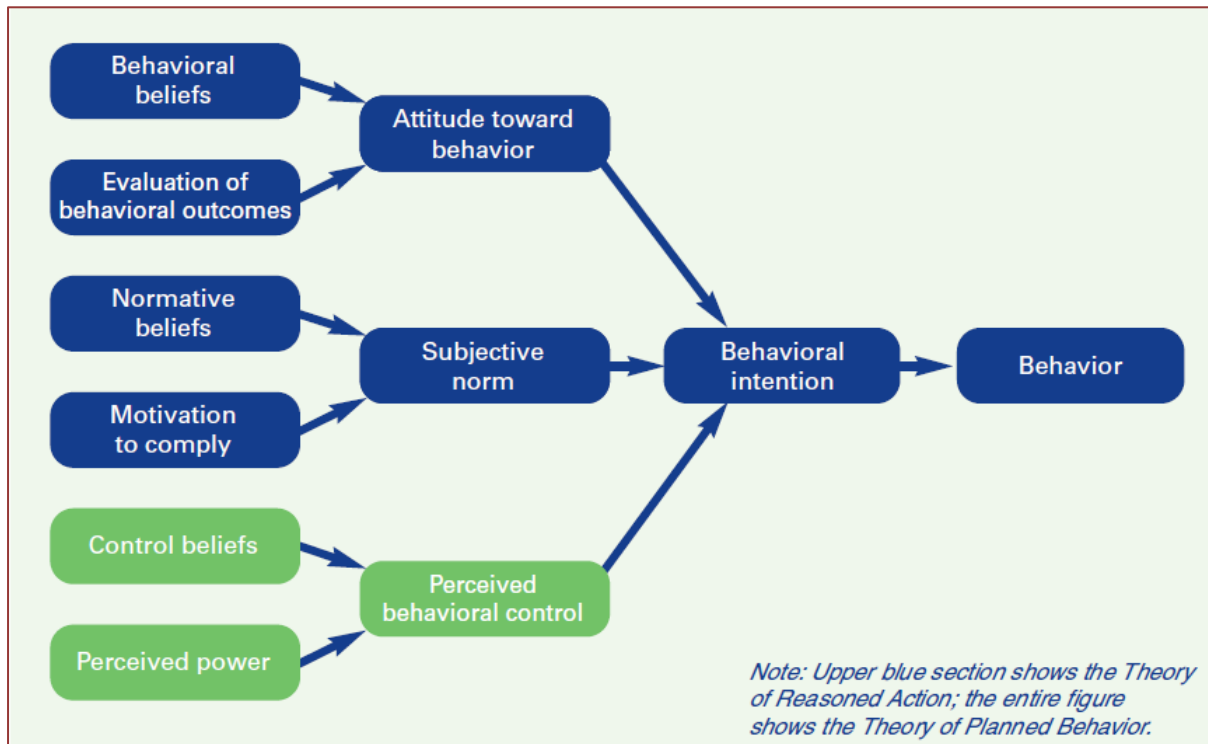
- The behaviour under consideration must be under volitional control meaning behaviour must be under the person's control to decide at will to perform it or not. The more the performance of the behaviour is dependent on appropriate opportunities or on possession of adequate resources (time, money, skills and the cooperation of other people.), the less the behaviour is under volitional control (Ajzen & Madden, 1986 458). The behaviour of interest in this study, which is generic substitution, is enforced by the Medicine Act and medical aids, while the patient has final decision whether to accept or reject substitution.

2.5.5. Theory Planned Behaviour (TPB)

The Theory Planned Behaviour (TPB) has been used in the investigation of a broad range of health-related behaviours like diet, physical activity, condom use and more; the theory is based on the assumption that intentions toward a behaviour are influenced by three proximal constructs: attitudes toward the behaviour (positive or negative outcomes of the behaviour), subjective norms (perceived social pressure to engage or disengage in the behaviour) and perceived behavioural control (perceived ability to perform the behaviour) (Lino et al, 2014:401)

TPB differs from the TRA in that it includes one additional construct (Fig 2.9); *perceived behavioural control*; this construct has to do with people's beliefs that they can control a *particular behaviour* (Taylor, 2006). The theory was designed as an extension of the TRA, an attempt to address the challenge of control experienced with TRA by including the concept behavioural control. The theory acknowledges the challenges of accurately predicting the behaviour if the respondent does not have total control (Ajzen & Madden, 1986: 449). A pharmacist may have all the intentions and the will to switch the patient to a cheaper generic medicine, but if the doctor has given instructions to give the originator or even the patient insist on using the originator, the pharmacist will not substitute the medicine.

Figure 2-10: Theory of Planned Action (TPA)



Source: Adapted from Ajzen & madden (1986:452)

In order to address the control challenges and also overcome the complexity of its assessments, in the Theory of Planned Behaviour a perceived behavioural control, the person's belief on the ease or difficulty to perform the behaviour. According to the theory, among the beliefs that ultimately determine intention and action is a set that deals with the presence or absence of requisite resources and opportunities.

The more resources and opportunities individuals think they possess, and the fewer obstacles or impediments they anticipate, the greater should be their perceived control over the behaviour. The control beliefs can therefore be treated as partly independent determinants of behaviour and beliefs about resources and opportunities may be viewed as underlying perceived behavioural control. These beliefs about behavioural control may be based in part on past experience with the behaviour, but they would usually also be influenced by second-hand information about the behaviour, by the experiences of acquaintances and friends, and by other factors that increase or reduce the perceived difficulty of performing the behaviour in question (Ajzen & Madden, 1986:448).

The perception of control, like attitude toward the behaviour and subjective norm, has an important impact on a person's behavioural motivation. The more that attainment of a behavioural goal is viewed as being under volitional control, the stronger is the person's intention to try.

2.5.6. Relationship between attitude and behaviour

Previous studies have demonstrated a poor correlation between attitude and behaviour, which were ranging between zero and 0.3. A close relationship between attitude and behaviour has been observed when an assessment was based on the attitude toward the behaviour rather than the attitude toward the target; ensuring a close match between the judgment measure and the behavioural measure and specifying the behavioural context when asking for the judgment; and using multiple behavioural criteria rather than a single criterion (Schwarz, 2007).

The theory of reasoned action (TRA) does not claim that attitudes influence behaviour, but they influence behavioural intentions which in turn shape our actions. The strength of a behavioural intention can predict the performance of the act itself (Wolters, 2013). In this study, the stronger the intention to substitute a branded medicine for a generic medicine can be a reliable predictor of the actual substitution. Beside attitude several other factors such as social norms, knowledge, economic conditions and more can influence intention (Wolters, 2013).

2.6. Conclusion

The South African pharmaceutical private market is worth about R30 billion per annum, with prescription drugs contributing 70%. Originator or innovator drugs contribute R12 billion (40%) of the market, while generics contribute only 23% of the market. There are still several barriers to generic substitution beside legislations (Medicine Act) compelling pharmacists to inform the patients about cheaper alternatives available, and medical schemes only paying up to generic medicine price patients who insist on getting the originator drug paying the difference.

Pharmacists are important stakeholders in driving the use of cheaper or generic medications as they are a point of sale. Pharmacists as the experts in medicine should therefore be able to educate other stakeholders like doctors, patients and other health care professionals on the cost effective ways to treat different conditions.

Generic substitution or recommendation is behaviour of interest in this study, where a closer look was given on factors influencing or predicting this behaviour. Pharmacists may not be studied like individual consumer rather as a business consumer, since they buy medicine to sell to patients. As a business consumer, the pharmacist's buying behaviour is influenced by environmental factors, organisational factors, interpersonal factors and personal factors.

Attitude is one of the personal factors with direct influence on the action or the intention to act (behaviour of interest). Consumer attitude is a response or assessment given by consumers consistently, as favourable or unfavourable, positive or negative, like it or not, agree or not to an object. Attitudes have significance role in making marketing decisions and there is a strong tendency to assume that this attitude as the most powerful factor for predicting the future behaviour and can help companies predict product demand and to develop appropriate marketing programs.

Evaluation of pharmacists' attitude towards generic medicines may help the pharmaceutical stakeholders in terms of intervention or marketing strategies. For example, generic companies, medical aids and government would implement strategies to drive a positive attitude towards generics to increase the usage while the originator or innovator companies would benefit from a negative attitude.

Most of the theories or models used to understand health behaviour were developed and adapted from other disciplines like psychology, sociology, anthropology and others. Fishbein's Theory of Reasoned Action and a later improved version called the Theory of Planned Behaviour are one of the common models used to determine factors that can be used to predict the behaviour of interest. According to these models, attitude influence behavioural intentions which in turn shape the actions or behaviour. This study will use the Fishbein's model to evaluate the attitude towards generic medicines by pharmacists.

In chapter three the empirical study is discussed which covers the development of the research instrument, sampling data collection and presentation of the research findings. The findings are divided into demographic data, quantitative data which covers the reliability of the instrument; and the t-test and ANOVA and Spearman correlations. The chapter finally facilitates a discussion of the findings.

CHAPTER 3 RESEARCH FINDINGS AND DISCUSSION

3.1 INTRODUCTION

This was a quantitative study, where data was collected from pharmacists and pharmacists' assistants working in private pharmacies in Gauteng province. The pharmacies were selected according to their willingness to participate. All pharmacists and assistants of all races, gender and age groups were given questionnaires to complete.

This section outlines further the empirical study on the sampling method, development of the research instrument according to the Fishbein's theory of planned behaviour.

A total of 116 questionnaires were completed and submitted for capture and analysis. The Cronbach alpha coefficients were used to determine the reliability of the instrument. A univariate analysis was used for the descriptive statistics, while t-test analysis was used to test the hypothesis and multiple regression methods were used to determine correlation among the constructs.

3.2 EMPIRICAL STUDY

3.2.1 Sampling

For the purpose of this study, pharmacists and pharmacists assistants practicing in the private pharmacies around Gauteng province was the sample frame. Gauteng was selected as the sampling frame due to its accessibility and also due to the fact that it is the economic hub of South Africa. There are 9674 pharmacy outlets in South Africa (public and private), and 3400 (35%) are in Gauteng (Medpages, 2014).

A non-probability sampling method was used due to its convenience and the fact that it is very economical. A convenience sampling method was used to target pharmacists and pharmacist assistants around Gauteng, where pharmacies were visited and all members were given questionnaires to complete. The method choice was mainly due to the fact that a significant variation in the population was not expected.

According to Francis (2004), for a Theory of Planned Behaviour (TPB) study using multiple regression approach, a sample size of 80 would be acceptable to achieve

moderate effect size. In this study, 130 questionnaires were distributed and 116 (89%) completed questionnaires were received back.

3.2.2 Research instrument

The instrument consisted of two sections, the demographic information and the quantitative information which was mainly collected using a 7-point Likert scale. The 7-point Likert scale was designed as follows:

- 1 = Strongly Agree
- 2 = Agree
- 3 = Slightly agree
- 4 = Neutral
- 5 = Slightly disagree
- 6 = Disagree
- 7 = Strongly disagree

The development of the instrument involved a literature review, development and design, testing or pilot among pharmacists who are not in retail pharmacy (who will not form part of the sample), then finalised.

The empirical study is based on the Theory of Planned Behaviour as researched and published by Ajzen and Fishbein (2008) to evaluate the attitude of pharmacists towards generic medicines. In construction of the instrument, a guide by Ajzen (2006), was used to construct and adapt an instrument according to the current research and the South African setting.

Theory of Planned Behaviour is based on the fact that human actions are guided by three main outcomes, which are (Table 3.1):

- Behavioural beliefs : beliefs about the likely outcomes of the behaviour and the evaluations of those outcomes,
- Normative beliefs: beliefs about the normative expectations of others and motivation to comply with those expectations,
- Control beliefs: beliefs about the presence of factors that may facilitate or impede performance of the behaviour and the perceived power of these factors.

In their respective aggregates, behavioural beliefs produce a favourable or unfavourable attitude toward the behaviour; normative beliefs result in perceived social pressure or subjective norm; and control beliefs give rise to perceived behavioural control.

Table 3-1: Number of items per construct

Out come	Constructs	No of Items
Attitude towards the behaviour	Behavioural Belief	7
	Evaluation of behaviour	5
Subjective Norm	Motivation to Comply	6
	Normative Belief	5
Perceived Behavioural control	Perceived Power	9
	Control Belief	4

3.2.3 Data collection

A cross sectional study was done to collect data by direct approach method, where an instrument with a covering letter outlining the purpose of the research, were distributed to pharmacists and assistants by the researcher assisted by sales representatives.

3.2.4 Data analysis

The data capturing and analysis was done through the North-West University Statistical Consultation Service using the Statistical Package for Social Sciences (SPSS Inc) version 18. The frequencies, especially around the demographic information were analysed. The results were analysed using Cronbach Alpha coefficients to measure reliability of the research instrument, t-test and ANOVA to test the hypothesis and the variance between groups; the effect sizes and Spearman's rho to determine the correlation and relationship between two variables of interest using the guide in table 3.2.

Table 3-2: Correlation and effect size interpretation guide

Correlation value	Correlation strength
0.00 - 0.19	Very weak
0.20 – 0.39	Weak
0.40 – 0.59	Moderate
0.60 – 0.79	Strong
0.8. – 1.0	Very strong

The effect size is a statistical measure that calculates the practical significance between two groups of variables. The effect size values have to be greater than 0 and a practical significance is found with a d-value ≥ 0.8 . The effect size explains a large enough effect which can be significant in practice and explains the difference in means, as in table 3.3 (Du Plooy, 2012).

Table 3-3: Effect size classification

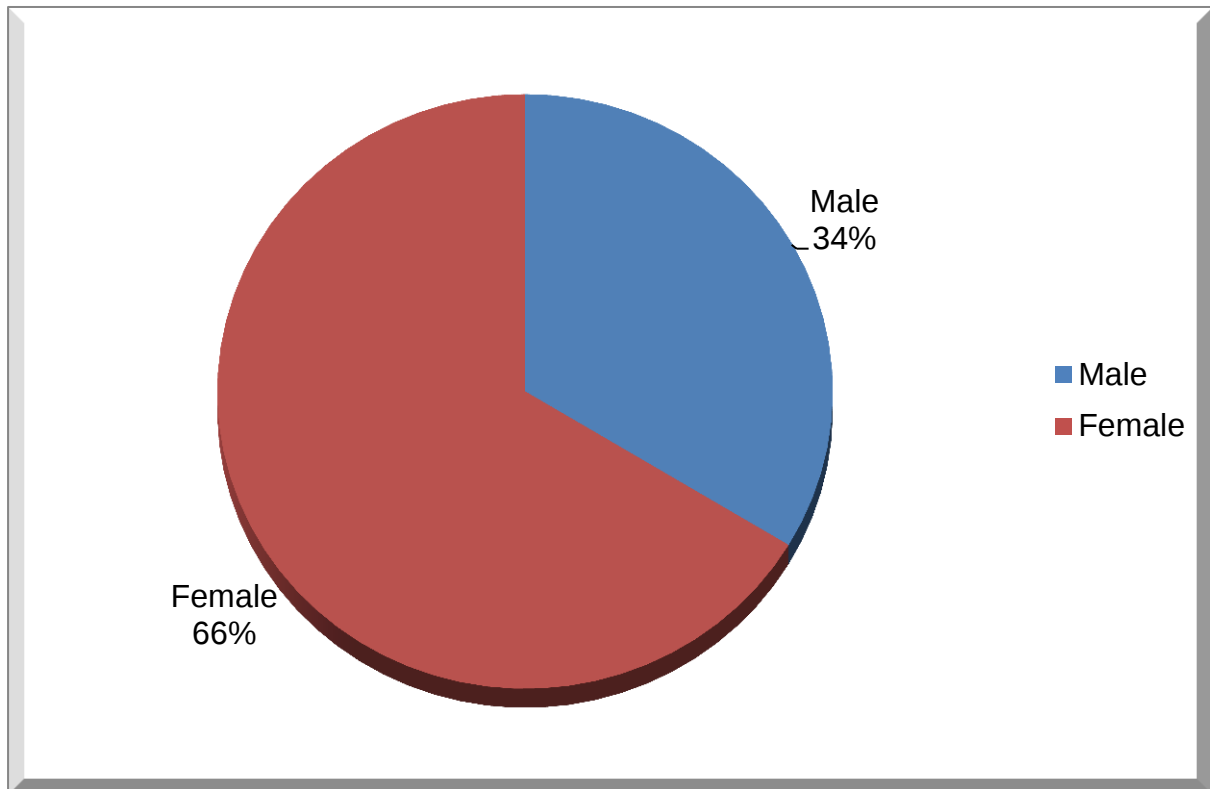
Effect Size	interpretation
$0.2 \leq d < 0.5$	Small effect
$0.5 \leq d < 0.8$	Medium effect
$d \geq 0.8$	Larger effect, practically significant

3.3 RESEARCH FINDINGS

3.3.1 Demographic information

Figure 3.1 shows the female respondents were more represented than the males, making 66% of the sample versus 34% males.

Figure 3-1: Pharmacists distribution by gender



Some 42% of the respondents were of 26-35 years as presented in figure 3.2., followed by the age group 36-46 years with 25.9% representation, then the 46-55 years and >55 years with 14.3% and 10.7% representations, respectively. Three quarters of the respondents were below the age of 46 years. The younger group of the less than 25 years was the smallest groups with 7.1% representation.

Figure 3-2: Pharmacists by age groups (years)

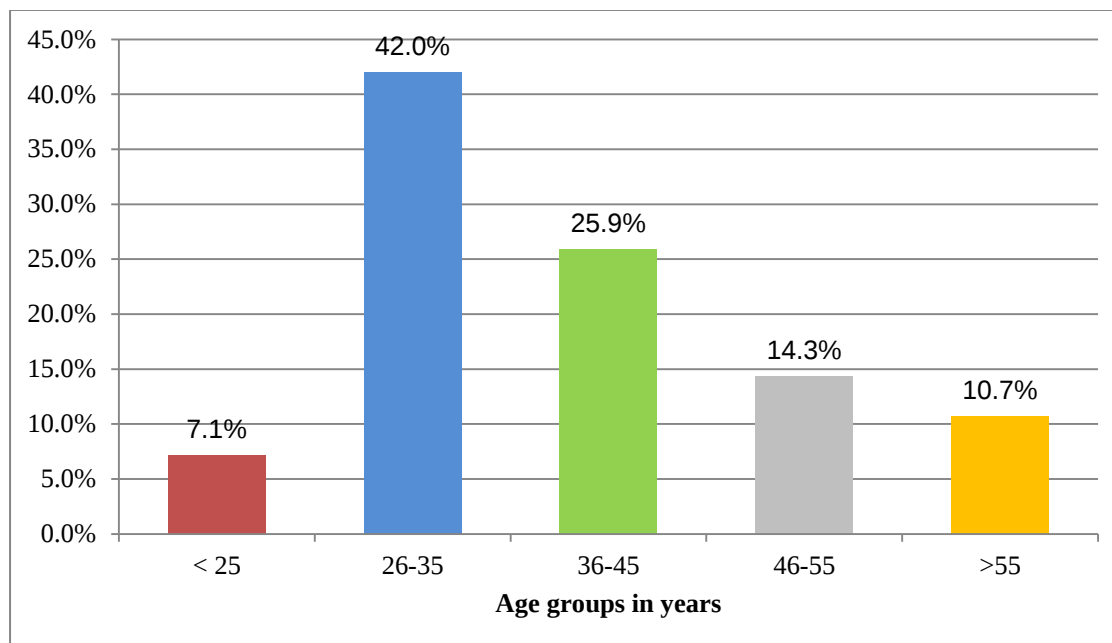


Figure 3.3 show that 43% of the respondents have a degree while the other 43% have a diploma or certificate. The distribution is in line with the employment position data where there is almost 50/50 distribution between pharmacists and pharmacist assistants. Only 14% of the respondents have a postgraduate qualification.

Figure 3-3: Respondent's level of qualifications

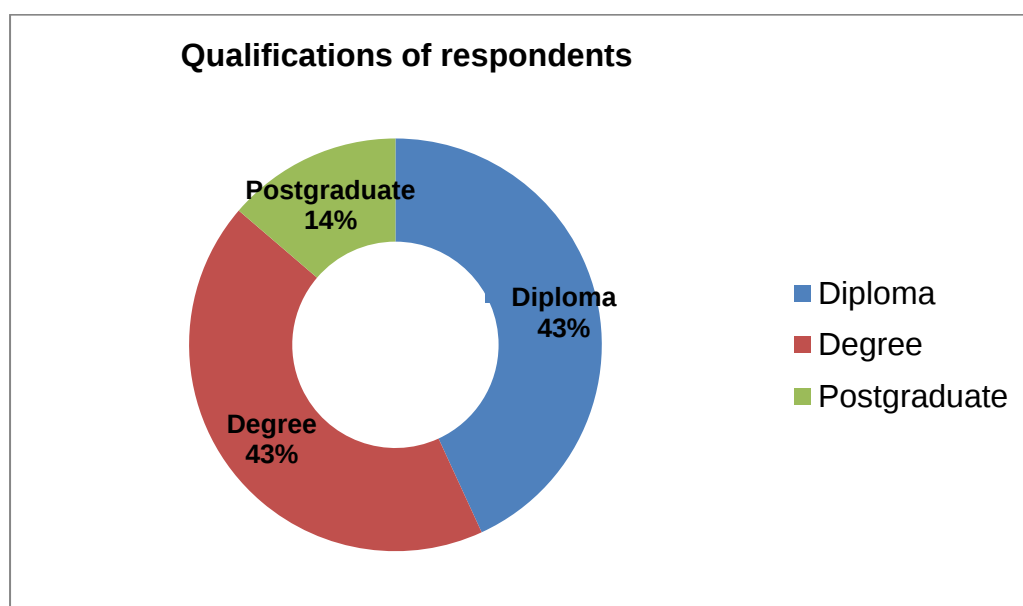
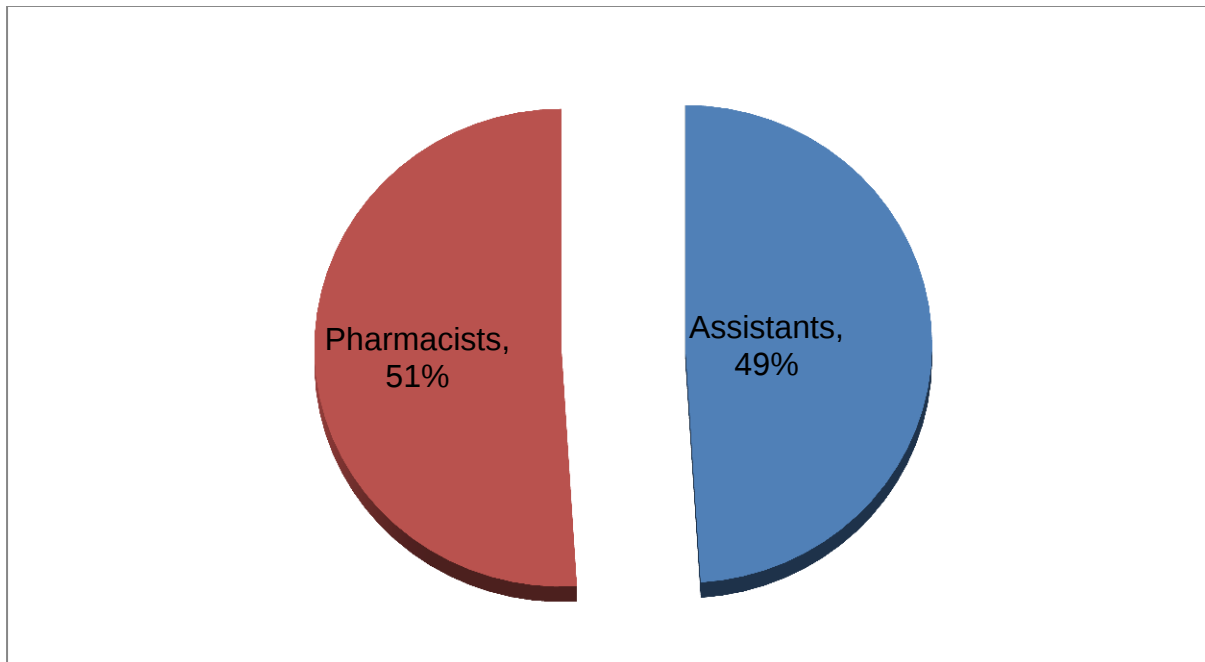


Figure 3-4: Employment position



There was almost 50/50 representation by employment position between pharmacists (51%) and pharmacist assistants. Most of the chain store outlets would have one pharmacist for every five assistants, while the independent pharmacies would have one pharmacist and one assistant or sometimes two pharmacists who are partners.

Figure 3-5: Number of years in practice

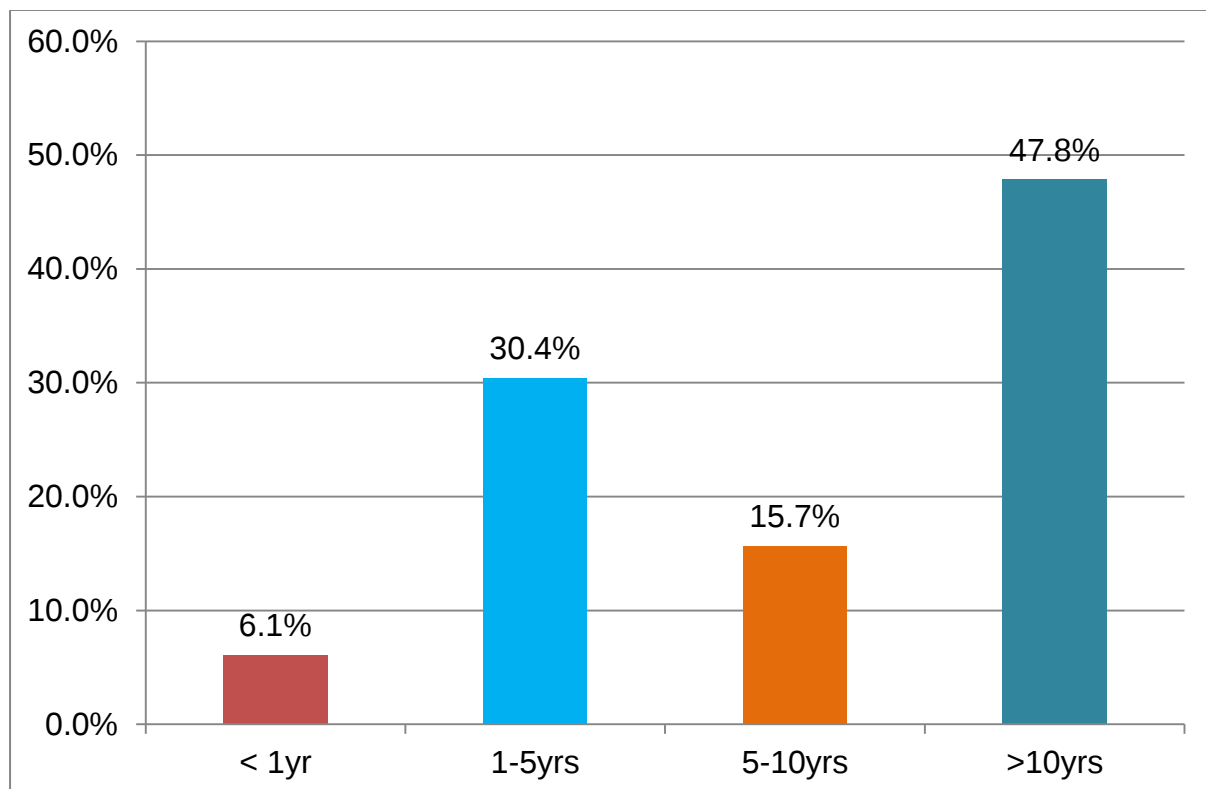
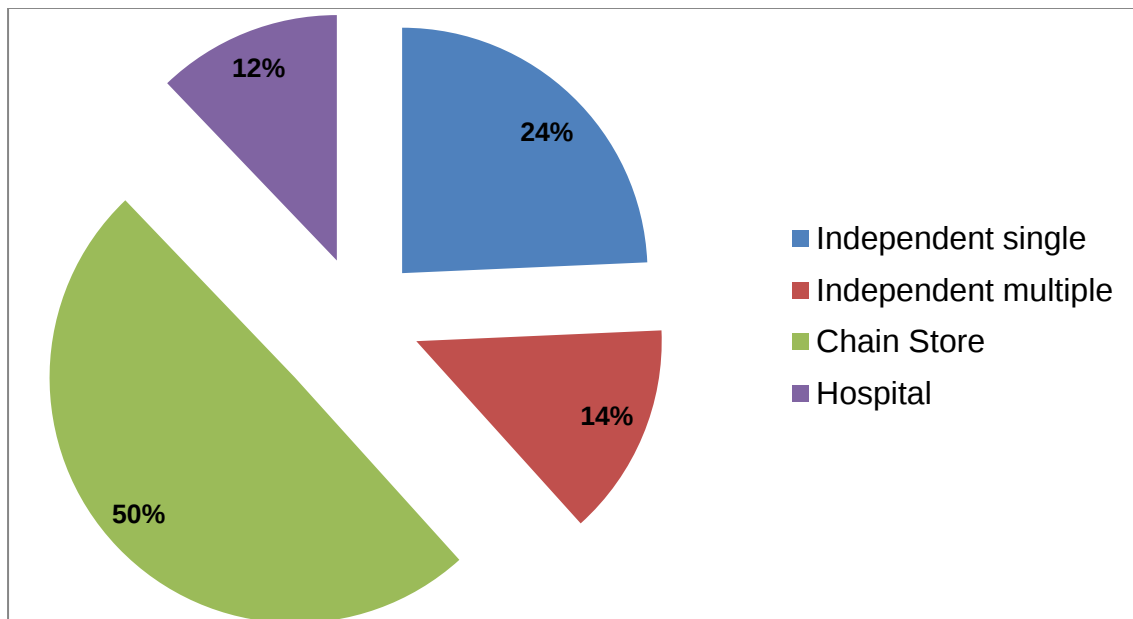


Figure 3.5 above shows that most of the respondents had more than 10 years' experience, followed by 1-5 years representing 30.4%, then the 5-10 years and less than 1 year representing, 15.7% and 6.1%, respectively. Almost half of the respondents have more than 10 years' experience, while the other half has less than 10 years' experience.

Half of the respondents (50%) worked in chain stores pharmacies like Clicks, Medirite or Dischem, while 24% worked in an independent single store outlet, 14% in an independent store with multiple outlets and 12% worked in a hospital pharmacy.

Figure 3-6: Type of Pharmacy



As shown in figure 3.7, most of the respondents were from the pharmacies located in suburbs (44%), followed by the city centre outlets (42.2%) and township outlets represented 13.8%.

Figure 3-7: Pharmacy location

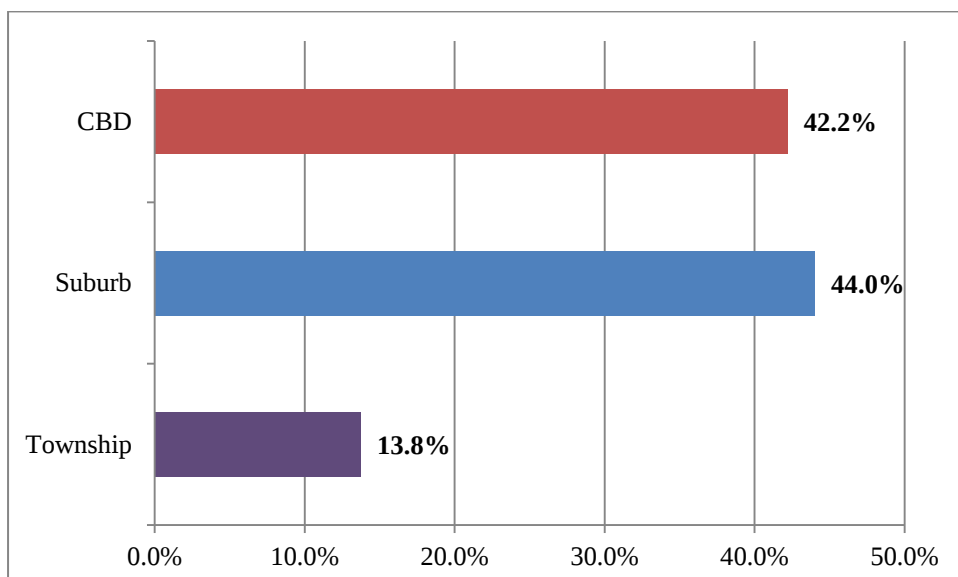
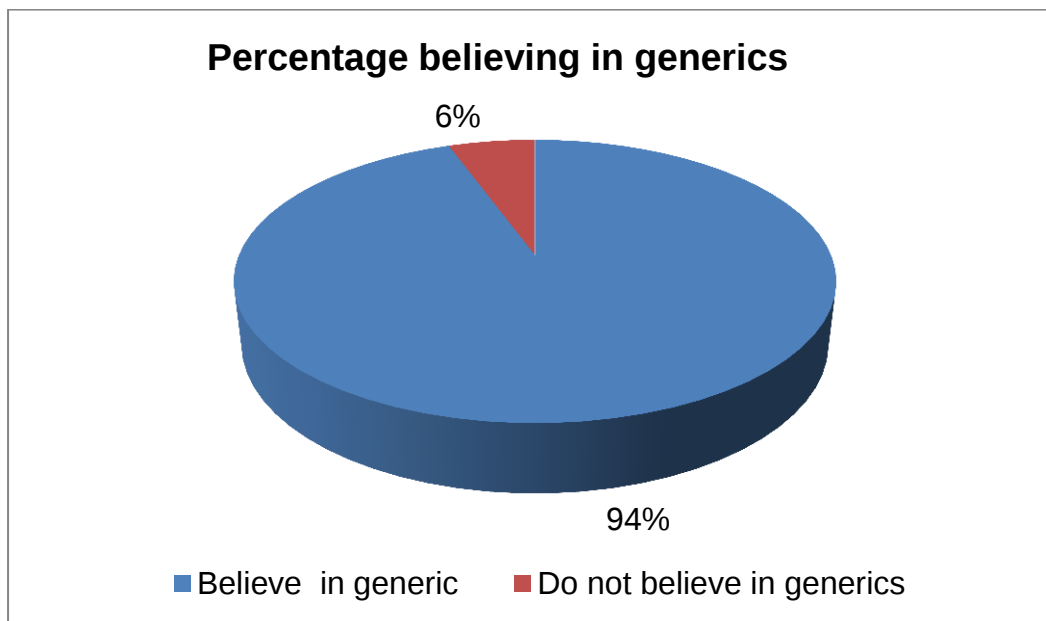


Figure 3-8: Respondents believe in generics



On the question “I believe generic medicines is a viable alternative to original medicines” 94% of the respondents answered “YES” with only 6% answering “NO” as presented in figure 3.8, which is an indication that there is a high acceptance of generics by pharmacists. Most of the pharmacists believe in generics as a viable alternative to originator products, therefore one would expect the attitude to be of a positive nature.

As a summary for the demographic findings, there were 116 respondents, where half were pharmacists and another half were assistants with 66:34 female to male distribution. There was an equal distribution (43%:43%) between respondents with diploma and degree. Half of the respondents were practicing in the chain store outlet, while a quarter of them were from an independent store with single outlet. The majority of the respondents had more than ten years of experience while most of the respondents were practicing in the outlets located in the suburbs and city centre. A higher percentage (94%) of the respondents reported to “believe generic medicines are a viable alternative to original medicines”.

3.3.2 Descriptive data analysis

3.3.2.1 Reliability of research instrument

Reliability is concerned with the ability of an instrument to measure consistently. The reliability of an instrument is closely associated with its validity, where an instrument cannot be valid unless it is reliable (Tavakol & Dennick, 2011:54).

Cronbach's alpha measures the internal consistency of a test or scale and it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test. The value of alpha should be between 0.7 and 0.95 (Tavakol & Dennick, 2011:55).

As shown in Table 3.4, most of the constructs have proven an internal consistency or reliability with Cronbach's Alpha ranging from 0.725 to 0.882. The only construct which has shown non-reliability is the "Control Belief" with an alpha of 0.374. The "Control belief" was therefore excluded from further analysis.

Table 3-4: Reliability Statistics

Constructs	Cronbach's Alpha	Cronbach's Alpha Based on Std Items	No of Items
Behavioural Belief	.844	.863	7
Evaluation of Behaviour	.882	.880	5
Control Belief	.374	.388	4
Motivation to Comply	.725	.730	6
Normative Belief	.735	.739	5
Perceived Power	.860	.859	9

Table 3.5 shows in detail the items in the control belief construct and the Cronbach's Alpha if that item is deleted. The construct failure of the reliability test might be due to the following reasons:

- The construct had very few items (4), any mistake with one item would have a huge impact on the entire construct.

- Question 33 had errors, maybe it was not well understood, hence when deleted the Cronbach Alpha improves significantly to 0.427.
- Question 36 also, when deleted, the Cronbach Alfa improves significantly to 0.327.
- Maybe the fact that all the answers to the questions are somehow mutually exclusive, where if one believes that it is up to the pharmacists whether to substitute or not, he/she should disagree with other questions which put the controls in the hands of the patients, funders or doctors.
- Lastly, the problem might be due to the application of the Theory of Planned Behaviour (TPB), which does takes the control factors into consideration; instead of applying the Theory of Reasoned Action (TRA), which exclude the control factors. This might be the case due to the fact followings facts:
 - Pharmacists are obliged to inform the patients about the availability of the cheaper options and recommend substitution. The Medicines and Related Substances Control Act, No 101 of 1965 as amended by the Act 90 of 1997 takes control out of the pharmacists hands, therefore the recommendation of the generic would not be by choice but by obligation.
 - Medical aids may enforce the use of generics through co-payment methods where a pharmacist would be obliged to inform the patient about co-payment if he/she would like to stay on the branded medicine.
 - The doctor may write “do not substitute” meaning, the pharmacist may not switch to cheaper generic.
 - The patient may reject substitution and pay whatever co-payment amount required especially in areas where customers are of higher economic status like in the suburbs.
 - In this study half of the respondents were from chain-store outlets, meaning the external factors influencing organisational buying behaviour (environmental and organisational factors), discussed in chapter two, would play an important role in how the entire organisation (not the outlet) engage with suppliers, funders and patients.

All of the above factors combined are a clear indication that pharmacists feel or perceive not to be in control in terms of generic substitution.

Table 3-5: Control Belief further analysis

	Scale Mean if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q33	8.68	.098	.010	.427
Q35	11.19	.315	.123	.201
Q36	10.12	.185	.055	.327
Q44	9.51	.232	.085	.272

3.3.2.2 Gender

There was no statistical difference between males and females across all the constructs as the p-values are all greater than 0.05 (Table: 3.6), the null hypothesis could not be rejected. There were no large effect sizes across all the constructs.

Gender was included as one of the most important personal factors that influence customers' decision-making behaviour. Social relationship/roles and responsibilities of men and women, the expectations held about the characteristics, aptitudes and likely behaviours of both women and men (femininity and masculinity) that are learned change over time and vary within and between cultures (Bashaki, 2012:8).

Gender has an important role in consumer behaviour due to the differences between men and women about expectation, want, need, lifestyle and so on. As per the socialisation of men and women, women are perceived to be internally focused and often talk as a way to connect and relate to others, whereas men are perceived to be externally focused and often view situations as issues to be resolved. Men and women also possess different problem solving skills even though they approach the same problem with the same goal in mind but their steps would be different (Bashaki, 2012:8).

The role of personal factors in both individual and organisational consumer behaviour cannot be overlooked. Even if an individual is in a corporate environment, personal factors will still influence the purchase behaviour.

Table 3-6: T-test gender

Constructs	Gender	N	Mean	Std. Deviation	P-value	Effect Size
Behavioural Beliefs	Male	37	5.1544	1.24147	.80971	0.05
	Female	73	5.0978	1.11978		
Evaluation of Behavioural	Male	37	3.0000	1.80616	.20600	0.23
	Female	72	2.5910	1.46709		
Normative Beliefs	Male	37	3.4865	1.03230	.78200	0.05
	Female	72	3.4201	1.25161		
Motivation to Comply	Male	37	3.2523	1.19646	.08839	0.34
	Female	72	2.8155	1.28448		
Perceived Power	Male	37	3.2793	1.35619	.92673	0.02
	Female	72	3.3047	1.36495		

3.3.2.3 Employment position

Table 3.7 shows that there was no significant difference between pharmacists and pharmacists' assistants across all the constructs with p-values above 0.05 and the effect sizes were also below the medium. We therefore cannot reject the null hypothesis.

Differentiating pharmacists and assistants was very important as assistants work under direct or indirect supervision of the pharmacist. For this study post basic assistants (PAPB) were targeted as they are able to prepare the prescription and may explain the benefits of generic substitution to a patient. However, a pharmacist must be involved in the final substitution decision on which medicine should be dispensed to the patient (Osman, 2014).

Table 3-7: T-test employment position

	Employment position	N	Mean	Std. Dev.	P Value	Effect Size
Behavioural Beliefs	Ph Assistant	56	5.0485	1.009	0.457	0.13
	Pharmacist	58	5.2094	1.270		
Evaluation of Behavioural	Ph Assistant	55	2.7564	1.557	0.919	0.02
	Pharmacist	58	2.7259	1.630		
Normative Beliefs	Ph Assistant	55	3.4645	1.178	0.849	0.04
	Pharmacist	58	3.4224	1.168		
Motivation to Comply	Ph Assistant	55	2.9509	1.353	0.985	0.00
	Pharmacist	58	2.9555	1.160		
Perceived Power	Ph Assistant	55	3.3596	1.214	0.622	0.09
	Pharmacist	58	3.2345	1.457		

3.3.2.4 Age

Table 3.8 shows that there was no significant difference between the age groups across all the constructs with all the p-values greater than 0.05, therefore we cannot reject the null hypothesis.

Just like gender, age is also one of the most important personal factors influencing the consumer buying behaviour. Young consumers may be risk takers and are willing to try new things; while the older generation may be more conservative, cautions prefers what has worked throughout the years.

This may explain the moderate (0.58) effect sizes on behavioural beliefs and evaluation of behavioural outcomes (0.50) obtained when comparing the persons older than 55 years with persons of 36-45 years and those older than 55 years suggesting that there may be some difference between these two groups.

Table 3-8: ANOVA Age

Constructs	Age Groups	N	Mean	Std. Dev.	P-Value	Effect sizes		
						< 35	36-45	46-55
Behavioural Beliefs	< 35	55	5.103	.993	.19663			
	36-45	29	5.448	1.034		0.33		
	46-55	16	5.267	1.314		0.12	0.14	
	>55	12	4.666	1.336		0.33	0.58	0.45
	Total	112	5.169	1.100				
Evaluation of Behavioural	< 35	55	2.701	1.585	.50075			
	36-45	28	2.376	1.556		0.21		
	46-55	16	2.862	1.740		0.09	0.28	
	>55	12	3.162	1.330		0.29	0.50	0.17
	Total	111	2.692	1.572				
Normative Beliefs	< 35	55	3.240	1.026	.46659			
	36-45	28	3.476	1.218		0.19		
	46-55	16	3.537	1.315		0.23	0.05	
	>55	12	3.758	1.327		0.39	0.21	0.17
	Total	111	3.398	1.151				
Motivation to Comply	< 35	55	2.967	1.344	.75860			
	36-45	28	2.788	1.156		0.13		
	46-55	16	3.145	1.438		0.12	0.25	
	>55	12	2.729	.658		0.18	0.05	0.29
	Total	111	2.922	1.248				
Perceived Power	< 35	55	3.234	1.171	.67563			
	36-45	28	3.023	1.306		0.16		
	46-55	16	3.416	1.651		0.11	0.24	
	>55	12	3.494	1.327		0.20	0.35	0.05
	Total	111	3.235	1.290				

Both the behavioural belief and evaluation of behavioural outcomes are the antecedents of attitude. Even though the p-value in table 3.8 shows non-significant

difference among age groups, high effect sizes suggest that there might be a difference between these age groups in terms of the attitude towards generic medicines.

One assumption for the difference may be that the older pharmacists have some reservations in terms of the generic medicines compared to their younger counterparts, hence the behavioural belief mean score for the older than 55 years is 4.666 versus 5.5.448 for the 36-35 years age group. The same difference is observed in the evaluation of behavioural outcomes, where the mean score of the older than 55 years age group is 3.162 versus 2.376 in the 36-45 years age group.

A second assumption may be the sample representation of the older than 55 years group, that the number may be too low for the comparison since only 12 respondents out of 112 respondents were older than 55years of age.

3.3.2.5 Qualifications

As shown in Table 3.9, there was no significant difference between levels of qualifications on attitude towards generics across all the constructs. All the p-values were greater than 0.05, meaning there is no sufficient evidence to reject the null hypothesis.

On the construct “perceived power”, there are medium effect sizes of Post grads x Diploma (0.49) and Post grad x Degree (0.68), suggesting that beside a statistically non-significant difference between these groups, there might be some differences which could be picked if studied further. Pharmacists with post graduates qualifications might be having some reservations on the use of generics.

Table 3-9: Qualifications

Constructs	Qualifications	N	Mean	Std. Deviation	P-value	Effect sizes	
						Dip	Deg
Behavioural Beliefs	1. Diploma	44	5.0162	1.08632	.4750		
	2. Degree	44	5.2078	1.17499		0.16	
	3. Post grad	14	5.0000	1.40531		0.01	0.15
	Total	102	5.0966	1.16356			
Evaluation of Behavioural	1. Diploma	43	2.8884	1.60078	.9680		
	2. Degree	44	2.5977	1.57631		0.18	
	3. Post grad	14	2.8857	1.65244		0.00	0.17
	Total	101	2.7614	1.58762			
Normative Beliefs	1. Diploma	43	3.4279	1.29437	.2610		
	2. Degree	44	3.2932	1.03506		0.10	
	3. Post grad	14	3.8286	1.22501		0.31	0.44
	Total	101	3.4248	1.17893			
Motivation to Comply	1. Diploma	43	3.0775	1.31301	.3650		
	2. Degree	44	2.8140	1.07695		0.20	
	3. Post grad	14	3.1190	1.30159		0.03	0.23
	Total	101	2.9685	1.20906			
Perceived Power	1. Diploma	43	3.4109	1.31793	.8270		
	2. Degree	44	3.1400	1.39461		0.19	
	3. Post grad	14	4.0873	1.37622		0.49	0.68
	Total	101	3.3866	1.38123			

3.3.2.6 Number of years in practice

The number of years (Table 3.10) shows that there was no significant difference between the years in practice across all the constructs, and we cannot reject the null hypothesis. The saying that experience is the best teacher also applies in consumer behaviour, where experienced customers have experience in using a product, compared it to other products, have experienced success and failures with some products and/or class of products.

In this case a moderate effect size suggest a difference between respondents of less than 5 years' experience and those of more than 5 years' of experience is observed on the behavioural beliefs, which is not supported by evaluation of the behavioural outcomes.

The low mean score for the respondents of less than 5 years of experience suggest that this group is not keen on generics. The finding is in contradiction with the previous finding of older respondents not keen on generics compared with the younger ones. The possible difference is therefore rejected as a possible problem with understanding of the instrument by the respondents.

Table 3-10: ANOVA Years in Practice

Constructs	Year of experience	N	Mean	Std. Deviation	P-value	Effect sizes	
						<5yrs	5-10yrs
Behavioural Beliefs	< 5yrs	42	4.8061	1.09791	0.085		
	5 - 10yrs	18	5.3175	0.88002		0.47	
	> 10yrs	55	5.2909	1.21963		0.40	
	Total	115	5.1180	1.14462			0.02
Evaluation of Behavioural	< 5yrs	41	2.9902	1.58868	0.476		
	5 - 10yrs	18	2.6111	1.52697		0.24	
	> 10yrs	55	2.6100	1.61484		0.24	
	Total	114	2.7469	1.58868			0.00
Normative Beliefs	< 5yrs	41	3.4524	1.17057	0.988		
	5 - 10yrs	18	3.4111	0.98333		0.04	
	> 10yrs	55	3.4200	1.23549		0.03	
	Total	114	3.4303	1.16630			0.01
Motivation to Comply	< 5yrs	41	3.1008	1.47858	0.292		
	5 - 10yrs	18	3.2130	1.22715		0.08	
	> 10yrs	55	2.7712	1.07094		0.22	
	Total	114	2.9595	1.25827			0.36
Perceived Power	< 5yrs	41	3.4661	1.32689	0.545		
	5 - 10yrs	18	3.3704	1.36243		0.07	
	> 10yrs	55	3.1645	1.36548		0.22	
	Total	114	3.3055	1.34655			0.15

3.3.2.7 Pharmacy location

Table 3.11 shows that there was a significant difference between the pharmacy location (township, suburb and city centre) in both antecedents of attitude, with the p-value 0.02 for behavioural beliefs and 0.008 for the evaluation of behavioural outcome. In this case the null hypothesis was rejected.

The difference is also supported by the high effect sizes in both constructs. The effect size suggest that on behavioural beliefs the greatest difference is between the township and the suburb (0.64); and a moderate difference between the suburb and the city centre (0.42), while there is minor difference between the city centre and the township (0.25). A high mean value (5.58) for the township shows that pharmacists in the townships believe in generic medicines, followed by pharmacists in the city centre (5.31). Pharmacists' in the suburbs mean on behavioural belief was 4.78, indicating that even if they believe in generics they have reservations.

A similar picture is observed in evaluation of behavioural outcome, where the effect size suggest that the greatest difference is between the township and the suburb (0.61); followed by the difference between the suburb and the city centre (0.51), while there is a non-significant difference between the city centre and the township (0.11). A low mean value (2.237) for the township indicate that pharmacist in the townships highly evaluate generic substitution as positive, followed by pharmacists in the city centre (2.400). Pharmacist in the suburbs mean on evaluation of behavioural outcome was 3.291, indicating that this group is moderate in evaluating generic substitution.

Another significant difference between the pharmacy locations is observed in the construct perceived power with the p-value of 0.01. Perceived power together with control belief, which were excluded from further analysis due to lack of reliability, are the antecedents of perceived control. The effect size indicate that there is greater deference between township versus the suburb (0.75), followed by suburb versus city centre (0.5), while there is a minor difference between the city centre and township.

The lower mean values of 2.778 and 3.064 for the township and city centre, respectively, suggest pharmacists in the township feel they have more power to switch to the generics than their suburbs counterparts.

The normative beliefs and motivation to comply constructs are the antecedents of the subjective norms. In this regard there was no significant difference between the groups with p-values greater than 0.05. In the normative belief the effect size suggest that there might be difference between pharmacists in the township versus the suburb and city centre pharmacists, while there is not much difference between the suburb pharmacists versus the city centre ones.

Pharmacy location is an important indicator for the kind of customers it serves. All factors influencing consumer behaviour like social, cultures, psychological and personal will play a significant role in determining the buying behaviour.

Table 3-11: ANOVA Pharmacy Location

Construct	Location	N	Mean	Std. Deviation	P-Value	Effect sizes	
						TSP	SUB
Behavioural Beliefs	Township	15	5.581	0.890	0.022	0.64	0.42
	Suburb	48	4.786	1.241			
	City Centre	46	5.311	1.095			
	Total	109	5.117	1.169			
Evaluation of Behavioural	Township	15	2.237	1.435	0.008	0.61	0.51
	Suburb	48	3.291	1.730			
	City Centre	45	2.400	1.310			
	Total	108	2.773	1.584			
Normative Beliefs	Township	15	2.973	0.855	0.141	0.53	0.22
	Suburb	48	3.643	1.269			
	City Centre	45	3.369	1.147			
	Total	108	3.436	1.181			
Motivation to Comply	Township	15	2.744	0.852	0.566	0.28	0.14
	Suburb	48	3.109	1.321			
	City Centre	45	2.926	1.253			
	Total	108	2.982	1.234			
Perceived Power	Township	15	2.778	1.084	0.010	0.75	0.50
	Suburb	48	3.753	1.301			
	City Centre	45	3.064	1.369			
	Total	108	3.331	1.349			

In all the constructs where a significant difference was observed, further analysis using Tukey post hoc analysis was done and results are presented in tables 3.12 to

3.14. A significant difference between pharmacists in the township and suburbs across all the constructs discussed above were confirmed.

Table 3-12: Tukey Post Hoc Test for behavioural belief

Pharmacy Location	N	Subset for alpha = 0.05	
		Township	Suburb
Suburb	48	4.7857	
City Centre	46	5.3106	5.3106
Township	15		5.5810

Table 3-13: Tukey Post Hoc Test Evaluation of Behavioural

Pharmacy Location	N	Subset for alpha = 0.05	
		Township	Suburb
Township	15	2.2367	
City Centre	45	2.4000	2.4000
Suburb	48		3.2906

Table 3-14: Tukey Post Hoc Test Perceived Power

Pharmacy Location	N	Subset for alpha = 0.05	
		Township	Suburb
Township	15	2.7778	
City Centre	45	3.0642	3.0642
Suburb	48		3.7533

3.3.2.8 Type of Pharmacy

As shown in table 3.15, there was no significant difference on the pharmacy type across the attitude constructs. In normative belief construct a p-value of 0.49 suggests that there is a significant difference (Chain x Independent Multiple outlets). In this case for the attitude evaluation the null hypothesis will not be rejected because the p-value is greater than 0.05.

Table 3-15: Anova Type of Pharmacy

Construct	Pharmacy type	N	Mean	Std. Deviation	P-Value	Effect sizes		
						IS	IM	CS
Behavioural Beliefs	Indepen. Single	26	5.2308	1.31371	.45954			
	Indepen. Multiple	15	5.5333	.96357		0.23		
	Chain Stores	53	5.0485	.98972		0.14	0.49	
	Hospital	13	5.2967	1.00756		0.05	0.23	0.25
	Total	107	5.1909	1.07407				
Evaluation of Behavioural	Indepen. Single	26	2.8135	1.73156	.75511			
	Indepen. Multiple	15	2.5600	1.35056		0.15		
	Chain Stores	53	2.7651	1.61232		0.03	0.13	
	Hospital	13	2.2923	1.41095		0.30	0.19	0.29
	Total	107	2.6907	1.57386				
Normative Beliefs	Indepen. Single	26	3.5308	1.27868	.04941			
	Indepen. Multiple	15	2.8133	1.01831		0.56		
	Chain Stores	53	3.6425	1.07002		0.09	0.77	
	Hospital	13	3.0769	.99512		0.35	0.26	0.53
	Total	107	3.4304	1.13601				
Motivation to Comply	Indepen. Single	26	3.1346	1.30386	.54018			
	Indepen. Multiple	15	2.5600	.95993		0.44		
	Chain Stores	53	3.0123	1.29474		0.09	0.35	
	Hospital	13	3.0897	1.36017		0.03	0.39	0.06
	Total	107	2.9880	1.25985				
Perceived Power	Indepen. Single	26	3.1966	1.45120	.31219			
	Indepen. Multiple	15	2.9407	1.10703		0.18		
	Chain Stores	53	3.4894	1.23073		0.20	0.45	
	Hospital	13	2.9402	1.11075		0.18	0.00	0.45
	Total	107	3.2746	1.26307				

The variable type of store or outlet is important to determining the level of influence by internal factors versus the external factors. In this study half of the respondents were from chain-store outlets, meaning the external factors influencing

organisational buying behaviour (environmental and organisational factors), discussed in chapter two, would play an important role in how the entire organisation (not the outlet) engage with suppliers, funders and patients.

According to the effect size, the greatest difference is due to the difference between chain stores and independent multiple store versus the chain stores. This is supported by the moderately high effect size (0.35) between the two groups in motivation to comply, which together with normative belief are the antecedents of subjective norm. The effect size also further suggest that 56% and 53% of the difference in normative beliefs may be due to the difference between the independent store-single outlet versus independent store multiple outlets, and hospital pharmacy versus chain store pharmacy.

The effect size also shows some possible difference between chain stores versus independent store multiple outlets (0.45) and hospital pharmacy versus the chain stores (0.45)

3.3.3 Spearman Correlations

Spearman's correlation coefficient measures the strength of a statistical monotonic relationship between paired data and the interpretation of the data is in line with the guide in table 3.2.

In interpreting the correlation results in table 3.15, one should note the difference between scales for "behavioural belief" versus the rest of the constructs. The behavioural belief was designed in such a way that the negative response took the smallest value and the positive value took the highest value. The rest of the constructs took an opposite approach compared to the behavioural belief where the positive response took the smallest value and the negative response took the highest value. What appears to be a negative correlation would therefore interpreted as a positive correlation.

The Spearman's correlation shows a strong correlation (0.709) between behavioural beliefs and evaluation of behavioural outcomes, which are the two antecedents of attitude in the Fishbein's model. The strongest correlation (0.769) was observed between "perceived power and normative belief". The antecedents of subjective norm which are motivation to comply and normative belief demonstrated a moderate

correlation (0.537). Correlation of the perceived behavioural control could not be determined due to the reliability failure of the control belief construct.

Table 3-16: Spearman's correlation coefficient

		Behavioural Beliefs	Evaluation of Behavioural	Normative Beliefs	Motivation to Comply	Perceived Power
Behavioural Beliefs	Correlation Coefficient	1.000	-.709**	-.497**	-.348**	-.619**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	116	115	115	115	115
Evaluation of Behavioural	Correlation Coefficient	-.709**	1.000	.544**	.507**	.583**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	115	115	115	115	115
Normative Beliefs	Correlation Coefficient	-.497**	.544**	1.000	.537**	.769**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	115	115	115	115	115
Motivation to Comply	Correlation Coefficient	-.348**	.507**	.537**	1.000	.532**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	115	115	115	115	115
Perceived Power	Correlation Coefficient	-.619**	.583**	.769**	.532**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	115	115	115	115	115

** . Correlation is significant at the 0.01 level (2-tailed).

3.3.4 Further Analysis on Attitude

3.3.4.1 Attitude Score

Attitude constructs had the highest Cronbach's Alpha coefficient (table 3.4) compared to constructs, with behavioural belief (0.844) and evaluation of behavioural outcome (0.882), showing a very high level of reliability.

Between the two antecedents of attitude, the instrumental component of attitude (behavioural belief) is regarded as the most direct measure of attitude, while the

affective component (feelings) of attitude is the indirect measure. Table 3-16 present the means for all seven items of the instrumental attitude construct.

Table 3-17: Direct measure of attitude

	Mean	Std. Deviation	N
Q9	5.53	1.280	115
Q10	5.33	1.419	115
Q11	5.37	1.373	115
Q12	4.25	2.077	115
Q13	5.63	1.360	115
Q14	4.21	2.011	115
Q15	5.41	1.270	115

Since there are seven items in the construct above and a 7-point Likert scale was used, therefore the range is:

$$1 \times 7 = 7 \text{ (minimum) and } 7 \times 7 = 49 \text{ (maximum)}$$

The mean for the construct = 35.73, which is 73%, meaning the pharmacists studied have 73% positive attitude towards the use of generic medicines. The finding is in line with the earlier finding in figure 3.8, where 94% of the respondents reported to believe in generics as a viable alternative to originator products.

Table 3-18: Indirect measures of attitude

	Mean	Std. Deviation	N
Q16	3.12	2.030	111
Q17	2.38	1.859	111
Q18	2.68	1.927	111
Q19	2.50	1.813	111
Q20	2.95	1.932	111

In the construct shown on the table above, there are 5 items and a 7-point Likert scale was used, therefore the range is:

$$1 \times 5 = 5 \text{ (minimum) and } 7 \times 5 = 35 \text{ (maximum)}$$

Unlike the direct measure construct, the indirect measure construct was designed in a way that the most positive outcome =1 and the most negative outcome =7

The mean of the construct = 13.62, which equal to $100\% - 39\% = 61\%$ positive attitude towards the generics.

Behavioural belief is the dominant driver of the attitude compared evaluation of the behavioural outcome. For one to change the attitude it is important to focus on changing the belief.

3.3.4.2 Subjective norm score

Subjective norm (a social factor) refers to the perceived social pressure to perform or not to perform the behaviour. It is based on the beliefs about whether key people approve or disapprove of the behaviour; motivation to behave in a way that gains their approval.

Tables 3.19 and 3.20 shows how diverse were the responses around these constructs. Unlike attitude it can be challenging to drive behaviour by influencing one of these construct to drive the subjective norm.

Table 3-19: Normative Belief construct

	Mean	Std. Deviation	N
Q22	4.05	1.762	113
Q24	3.17	1.546	113
Q26	2.13	1.677	113
Q40	4.42	1.689	113
Q41	3.30	1.580	113

$$1 \times 5 = 5 \text{ (minimum) and } 7 \times 5 = 35 \text{ (maximum)}$$

$$\text{Mean} = 17.07$$

$$100\% - 48.7\% = \mathbf{51.3\%}$$

Table 3-20: Motivation to comply

	Mean	Std. Deviation	N
Q21	2.62	1.988	112
Q27	3.46	1.995	112
Q28	3.13	1.727	112
Q29	2.72	1.761	112
Q31	2.43	1.887	112
Q32	3.32	1.960	112

$1 \times 5 = 5$ (minimum) and $7 \times 5 = 35$ (maximum)

Mean = 17.68

$100\% - 50.5\% = 49.5\%$

The two constructs (normative belief and motivation to comply) contribute almost equally to drive the subjective norm, therefore one would need to drive both in order to drive subjective norms, which together with attitude would influence an intention to act (substitute in this case).

In summary, the quantitative findings proved the reliability of the research instrument across all the constructs except “control belief. There was no significant difference between the groups in terms of gender, employment position, age, years in practice across all constructs, even though the effect size in some cases indicated that there might be some difference, for example, an effect size of 0.58 and 0.50 in the antecedents of attitude (behavioural belief and evaluation of behavioural outcome, respectively) suggest that there is a moderate difference beside a non-significant p-value.

Significant differences were observed in in pharmacy locations across behavioural belief and evaluation of behavioural outcome (attitude) and perceived power of control. The correlation coefficient of the attitude constructs (behavioural belief and evaluation of behavioural outcome) were high compared to those of subjective norm constructs (normative believe and motivation to comply) and that of the perceived behavioural control could not be determined due to the reliability failure of the control belief construct.

3.4 SUMMARY

This chapter covered the findings in terms of the research objective, to evaluate the pharmacist's attitudes towards generic medicines, using the Fishbein models of consumer behaviour. The findings were obtained through a research instrument which was designed and adapted from the model.

Research methodology included sampling procedure, instrument development, data collection and analysis.

Data analysis was divided into demographic and quantitative analysis, where the quantitative analysis covered reliability test for the instrument using the Cronbach Alpha coefficients, testing of the research hypothesis using the t-test and ANOVA and determination of correlation between constructs using Spearman's correlation coefficients.

The findings above address the research question on the attitude towards the generic medicines by pharmacists, and factors influencing that attitude. With application of the Fishbein model other constructs are included in the study to supplement the attitude in order to predict the intention which would lead to behaviour of interest which is the actual generic substitution.

Chapter four will conclude the study with focus on conclusions in line with the research hypothesis, recommendations and areas of future research in the field of attitude towards generic medicine and the application of the attitude models.

CHAPTER 4 CONCLUSION AND RECOMMENDATIONS

4.1 INTRODUCTION

This is the final chapter of the study of Gauteng's pharmacists' attitude towards generic medicines, where conclusions and future research opportunities will be covered. Chapter four covers conclusions which are based on the findings presented and discussed in chapter three in relation to the literature review covered in chapter two.

The attitude towards the generic medicines was evaluated using the Fishbein model, which is based on the evaluation of the attitude towards the behaviour (generic substitution), not the object (generic medicines). Evaluation of the attitude towards the behaviour has been found to be more reliable than the evaluation of the attitude towards the object, therefore the conclusion of the study will be based on the attitude toward generic substitution or generic medicines use.

The chapter will also cover the areas of future research and conclude with the overview of the current study.

4.2 CONCLUSIONS

4.2.1 Statistical analysis

The results of the construct reliability using the Cronbach Alpha coefficients showed that 5/6 of the constructs have proven an internal consistency or reliability with Cronbach's Alpha coefficients ranging from 0.725 to 0.882. The "perceived control" construct failed the reliability test; it was therefore excluded for further analysis. The exclusion left "perceived power" as the only antecedent for perceived behavioural control. For a complete Theory of Planned Behaviour all the constructs should be available for analysis, therefore further analysis in this study would be based on the Theory of Reasoned Action.

Due to the challenges outlined in chapter 3 regarding perception of control by pharmacist, TPB might not be the best method to use in predicting generic substitution by pharmacists. Future studies should look in the application of the TPB in the South African setting where there are challenges of control.

4.2.2 Pharmacists attitude towards generics

The study looked at the following demographic characteristics against the antecedents of attitude and the following outcomes were found:

- Gender: no significant difference
- Age: no significant difference
- Employment role (Pharmacists or assistant): no significant difference
- Qualifications: no significant difference
- Years of experience: no significant difference
- Type of pharmacy: no significant difference
- Pharmacy location: **there was a significant difference** between the types of location.

The pharmacy staff's attitude (positive or negative) towards generics medicine does not depend on gender, job level (Pharmacists or Assistant), qualifications, years of experience and type of pharmacy. As for the age of pharmacists, a more focused research is needed for further verification because even though there was no statistical significance but the moderate effect sizes suggest otherwise.

The research looked at the difference between the township, city centre and suburbs. The study found that, the main difference was between the suburb pharmacists with the others (township and city centre). The information above would be very important for the pharmaceutical marketers for both generics and innovator companies.

4.2.2.1 Generic companies

If a company is introducing the first generic to launch following the loss of exclusivity by the innovator drug and with the aim of capturing market share quickly before other generics launches it would rather channel more resources to the generics receptive market like the township and CBD as that would be the low laying fruits. These outlets serve mainly patients who are price sensitive and are mostly of middle to lower socioeconomic class. Pharmacists practicing in this market would mostly be price sensitive and promote generics hence a positive attitude.

A generic company with a generic medicine, which is a market leader in the generics receptive market, with no room for further growth while the innovator drug is still

enjoying a significant market share in the higher class market may invest in confrontational strategy versus the innovator. Knowing that there is a negative attitude towards the generics in this market, the company would need to invest in further research to determine the drivers/sources of the attitude in order to communicate the right message to the right customer.

4.2.2.2 Innovator companies

Pharmacy location would also be very important to the innovator companies, especially if the company is trying to hold onto the market share following loss of exclusivity. In the case like above high investment in the generics receptive market like the township and CBD would be waste resources. The company would rather invest further in the suburbs and capitalise on the negative attitude towards the generic medicines.

4.2.3 Correlations

A strong correlation between the antecedents of attitude (behavioural belief and evaluation of behavioural outcome) is an indication of the importance of attitude in the buying behaviour of both individual consumer and organisational buyer. In driving a positive attitude one needs to prioritise the behavioural belief as the major attitude driver compared to evaluation of behavioural outcome. It is up to the marketers to identify the drivers of attitude in relation to their products and put together strategies to change the attitude.

The subjective norms are not as strong as the attitude in predicting the behaviour. Between the antecedents of subjective norms (motivation to comply and normative belief, a moderate correlation and on further determination of subjective norms score, all the antecedents were at almost the same level suggesting they are all moderate drivers of the subjective norm.

The Theory of Planned Behaviour was downgraded to Theory of Reasoned Action due to the failure of the control belief, which together with perceived power are the antecedents of perceived behavioural control. Besides the fact that there were problems with the instrument (few items in the construct), reality is that pharmacists' control in generic medicines ends with a mere recommendation. The buck stops with the patients who can insist on the original no matter what the cost. Doctors can write 'no substitution' to stop the pharmacists from substituting. For this kind of study the

theory of reasoned action would be enough as it will cover the attitude and the subjective norm.

For the government to reduce the health care cost especially the pharmaceutical expenditure there is a need to identify the drivers of a negative attitude towards generics among pharmacists in the suburbs, and address that. Further education to the patient is also required.

The funders can also do better than using the co-payments system to drive the use of cheaper alternatives. An investment in patient education instead of perceived bullying is required, where patients can drive the demand of generics no matter how wealthy they are.

4.3 FUTURE RESEARCH

From the results and observations in this study, the following recommendations were made:

- Given the diversity of South Africa, a similar study can be done with a randomised representative sample of the whole country.
- A study to determine the application of the Fishbein's Models in the South African setting
- A more detailed study with constructs including previous behaviours, intentions to get a complete picture.

4.4 SUMMARY

The main aim of the study was to evaluate the attitude towards generic medicines by pharmacists in Gauteng Province. Generics are viewed as an opportunity to reduce healthcare cost; therefore a positive attitude would lead to more generic usage and cost reduction. Gauteng as the economic hub of the country, contributing more than 20% to the GDP, any behaviour change may have huge impact on the country as a whole.

Chapter two contained the literature review, where an overview of the South African pharmaceutical market was provided, and looking at the role of generics in the market, the role of different stakeholders, the role of pharmacists as the consumer

and models of consumer behaviour. Factors influencing consumer behaviour were explored and the role of attitude as well as the models available to evaluate the attitude.

Chapter three looked at the empirical study, instrument design, data collection, analysis and discussion. The empirical results focussed on the demographic profile for the respondents, reliability of the instrument, hypothesis testing and correlation between constructs.

Chapter four concluded the study by giving a conclusion outlining the research findings and literature review and opportunities for future research.

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APPENDIX A

Research instrument

Research questionnaire to evaluate the pharmacist's attitudes towards generic medicines

SECTION A: Demographic Information

1. Gender: ☐ Male ☐ Female
2. Age: ☐ <25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ >55
3. Qualifications: ☐ Diploma ☐ Degree ☐ Postgraduate
4. Employment position:
 ☐ Pharmacist Assistant
 ☐ Pharmacists
5. Number of years in practice: ☐ < 1yr ☐ 1-5yrs ☐ 5-10yrs ☐ >10yrs
6. Type of pharmacy
 ☐ Independent Single Store
 ☐ Independent multiple Stores
 ☐ Chain Stores
 ☐ Hospital Pharmacy
7. Pharmacy location: ☐ Township ☐ Suburb ☐ City Centre
8. I believe generic medicines is a viable alternative to original medicines
 ☐ YES ☐ NO

SECTION B

*Many questions in this survey make use of rating scales with 7 options where 1 & 7 represent the extremes. **Please circle the number that best describes your opinion.***

For me, switching prescriptions from a branded medicine to a generic medicine is:

9. Very bad	1	2	3	4	5	6	7	Very Good
Always Not								
10. Beneficial	1	2	3	4	5	6	7	Always Beneficial
11. Always Not Safe	1	2	3	4	5	6	7	Always Safe
12. Strongly Ethical	1	2	3	4	5	6	7	Strongly Unethical
13. Very Worthless	1	2	3	4	5	6	7	Very Valuable
14. Very Rewarding	1	2	3	4	5	6	7	Very Unrewarding
Always								
15. Inappropriate	1	2	3	4	5	6	7	Very Appropriate

SECTION C

Please circle the number that best describes your opinion.

Substituting a branded medicine with a generic medicine means:

16.	I am getting an equally effective drug	Strongly Agree	1	2	3	4	5	6	7	Strongly Disagree
17.	I am getting a cost effective drug for my patient	Strongly Agree	1	2	3	4	5	6	7	Strongly Disagree
18.	I am giving a good value for my patient's money	Strongly Agree	1	2	3	4	5	6	7	Strongly Disagree
19.	I am giving a low quality product	Strongly Agree	1	2	3	4	5	6	7	Strongly Disagree
20.	I am giving an equally safe product	Strongly Agree	1	2	3	4	5	6	7	Strongly Disagree

SECTION D

Please circle the number that best describes your opinion.

21.	Saving my patients some money is very important for me	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
22.	General practitioners would appreciate it if I switch their prescription to a generic medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
23.	I am willing to switch a branded medicine to a generic medicine if it would be taken by an elderly patient	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
24.	Patients would appreciate it if I switch their prescription to a generic medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
25.	I am willing to challenge other pharmacists who do not inform their patients about generic medicines	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
26.	Medical Aids would appreciate it if I switch their patients prescription to generic medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
27.	Doing what the medical aid approves is very important to me.	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
28.	Dispensing exactly what the doctor has prescribes is very important to me.	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
29.	Specialist approval for my practice is very important for me	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
30.	I am willing to challenge doctors who are against the use of generic medicines	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
31.	Giving my patient's an effective and safe medication is more important than cost	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
32.	My colleagues approval for my practice is very important for me	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
33.	It is totally up to me to decide whether to substitute or not to a	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

	generic medicine			
34.	I am willing to challenge and convince my patients who are against the use of generic medicines.	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
35.	It is up to the patient if he/she prefers to use the generic medicine or the branded medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
36.	It is up to the medical aid whether they will reimburse for the branded medicine or the generic medicine.	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
37.	I am willing to substitute all the branded medicines to generic medicines	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
38.	I am willing to recommend generic medicines for my family members	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
39.	I am willing to use generic medicines myself	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
40.	Specialists would appreciate it if I switch their prescription to a generic medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
41.	Other pharmacists are always happy to substitute a branded medicine with a generic medicine	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
42.	I am willing to challenge medical aids who forces patients to use only generic medicines	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
43.	I am willing to switch a branded medicine to a generic medicine if it would be taken by a child	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree
44.	It is up to the doctor/specialist whether the patient can be switched to a generic or not	Strongly Agree	1 2 3 4 5 6 7	Strongly Disagree

Thank you for your participation