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DEPARTMENT OF ECONOMICS

Patient perceptions of the quality of public healthcare in  
South Africa



by

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A full dissertation submitted in partial fulfilment of the requirement for the degree of Masters of Commerce in the Department of Economics, University of the Western Cape.

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May 2019

## DECLARATION

I declare that *Patient perceptions of the quality of public healthcare in South Africa* is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

**Asanda Ntunta**

Signature:



Date:

1 May 2019



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## ABSTRACT

The South African democratic government is mandated by the constitution to provide quality healthcare services to the citizens of the country. Therefore, healthcare in South Africa is considered as a basic human right. The existing healthcare system exhibits extreme inequality, which translates into inequity in health outcomes across different demographic factors. Even though quality healthcare is a basic human right, problems related to the quality of healthcare remain, which poses a major challenge for the South African government.

This dissertation investigates patient perceptions of the quality of public healthcare in South Africa, using General Household Survey data (2009-2016), with the objective of determining the level and trends of patient satisfaction and complaints reported when accessing public healthcare services in South Africa and identifying the correlates of these perception.

This study found that patient satisfaction with public healthcare services in South Africa has increased over time while complaints have decreased over time. This study refrains from drawing conclusion on these findings at face value, since they may be other factors that explain the observed trends. The most common complaint was long waiting time at public healthcare facilities. On average, White individuals, male household heads, individuals residing in rural areas and individuals from smaller household were more likely to report to being satisfied with healthcare services received at public healthcare facilities in South Africa. Therefore, patient satisfaction survey approach should be used in conjunction with other healthcare quality measures such as direct observation, vignettes and standardised or mystery patient.

**Keywords:** Public healthcare, Healthcare quality, Patient satisfaction, Acceptability

**JEL:** I00, I10

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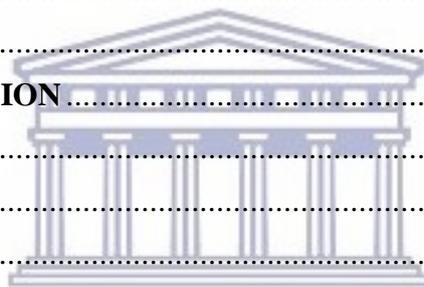
I am sincerely grateful to the village that raised me: my mother, Zukiswa Ntunta, my aunt, Xoliswa Ntunta, and my spiritual parents Mluleki and Tulisa Desemela. Thank you for always believing in my dreams, your unconditional love, consistent support and prayers. Opinionated ladies and all my friends, thank you for being my cheerleaders, providing me with love and support.

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## TABLE OF CONTENTS

<b>DECLARATION</b> .....	ii
<b>ABSTRACT</b> .....	iii
<b>ACKNOWLEDGEMENTS</b> .....	iv
<b>TABLE OF CONTENTS</b> .....	v
<b>LIST OF ABBREVIATIONS</b> .....	vii
<b>LIST OF TABLES</b> .....	viii
<b>LIST OF FIGURES</b> .....	ix
<b>CHAPTER ONE: INTRODUCTION</b> .....	1
<b>1.1 Background and problem statement</b> .....	1
<b>1.2 Objectives of the study</b> .....	2
<b>1.3 Relevance</b> .....	3
<b>1.4 Structure of the study</b> .....	3
<b>CHAPTER TWO: LITERATURE REVIEW</b> .....	4
<b>2.1 Introduction</b> .....	4
<b>2.2 Theoretical literature</b> .....	4
2.2.1 Human capital.....	4
2.2.2 Grossman’s model of health demand.....	6
2.2.3 Acceptability and perceived quality of care .....	9
<b>2.3 Empirical literature</b> .....	11
2.3.1 Complaints.....	11
2.3.2 Satisfaction levels .....	16
2.3.3 Complaints versus reported satisfaction.....	18
2.3.4 Socio-demographic characteristics associated with patient satisfaction .....	19
<b>2.4 Conclusion</b> .....	19
<b>CHAPTER THREE: METHODOLOGY AND DATA</b> .....	21
<b>3.1 Introduction</b> .....	21
<b>3.2 Data</b> .....	21
<b>3.3 Limitations</b> .....	23
<b>3.4 Methodology</b> .....	24
3.4.1 Uni- and bivariate analyses .....	24
3.4.2 Econometric model .....	25
3.4.3 Description of variables and sample of interest.....	26
3.4.4 Ethics.....	29

<b>3.5</b>	<b>Conclusion</b> .....	29
<b>CHAPTER FOUR: EMPIRICAL FINDINGS</b> .....		30
<b>4.1</b>	<b>Introduction</b> .....	30
<b>4.2</b>	<b>Descriptive statistics</b> .....	30
4.2.1	Patient satisfaction .....	31
4.2.2	Complaints.....	35
<b>4.3</b>	<b>Econometric analysis</b> .....	39
<b>4.4</b>	<b>Conclusion</b> .....	42
<b>CHAPTER FIVE: DISCUSSION</b> .....		44
<b>5.1</b>	<b>Introduction</b> .....	44
<b>5.2</b>	<b>Discussion</b> .....	44
5.2.1	Patient satisfaction .....	44
5.2.3	Correlates of patient satisfaction .....	46
5.2.2	Complaints.....	47
<b>5.3</b>	<b>Conclusion</b> .....	48
<b>CHAPTER SIX: CONCLUSION</b> .....		49
<b>6.1</b>	<b>Introduction</b> .....	49
<b>6.2</b>	<b>Review of findings</b> .....	49
<b>6.3</b>	<b>Conclusion</b> .....	51
<b>REFERENCES</b> .....		53
<b>Appendix A: Explanation of the PCA methodology</b> .....		60
<b>Appendix B: GHS 2016 health questions on patient satisfaction</b> .....		61
<b>Appendix C: Ordered probit model for patient satisfaction</b> .....		62



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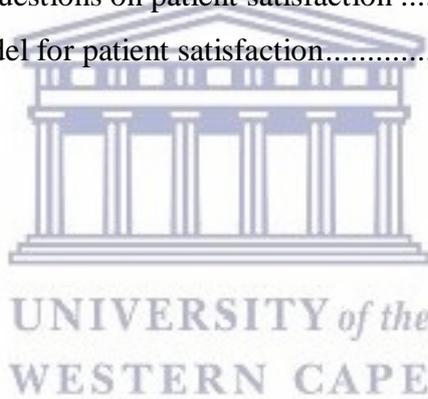
## LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
BRICS	Brazil, Russia, India, China & South Africa
DHS	Demographic Health Survey
GHS	General Household Survey
HIV	Human Immunodeficiency Virus
HCT	Human Capital Theory
LFS	Labour Force Survey
LCS	Living Conditions Survey
LPM	Linear probability model
MEI	Marginal efficiency of investment
NDP	National Development Plan
NHI	National Health Insurance
NIDS	National Income Dynamics Study
OHS	October Household Survey
OOP	Out-of-pocket payments
OPM	Ordered probit model
PCA	Principal Component Analysis
PSU	Primary Sampling Units
SES	Socio-economic status
StatsSA	Statistics South Africa
SUS	Unified Health System of Brazil
TB	Tuberculosis
WHO	World Health Organisation



## LIST OF TABLES

Table 4.1: Summary statistics of variables of interest .....	31
Table 4.2: Patient satisfaction across SES quintiles between 2009 & 2016 .....	32
Table 4.3: Patient satisfaction by employment status .....	35
Table 4.4: Complaints by SES quintiles.....	36
Table 4.5: Complaints across SES quintiles between 2009 and 2016 .....	36
Table 4.6: Complaints by race .....	37
Table 4.7: Complaints by gender .....	38
Table 4.8: Complaints by geo-type .....	38
Table 4.9: Complaints by education level .....	39
Table 4.10: Complaints by employment status.....	39
Table 4.11: Linear Probability Model for Patient Satisfaction.....	40
Table B.1: GHS 2016 health questions on patient satisfaction .....	61
Table C.1: Ordered probit model for patient satisfaction.....	63



## LIST OF FIGURES

Figure 2.1: Grossman model–production function of healthy days.....	7
Figure 2.2: Grossman model–education and health production .....	8
Figure 4.1: Patient Satisfaction by SES quintiles .....	32
Figure 4.2: Patient Satisfaction by race.....	33
Figure 4.3: Patient Satisfaction by gender.....	33
Figure 4.4: Patient Satisfaction by geo-type.....	34
Figure 4.5: Patient Satisfaction by education level.....	35



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## CHAPTER ONE: INTRODUCTION

### 1.1 Background and problem statement

The post-apartheid South African government inherited what has come to be known as the quadruple burden of disease: communicable diseases (e.g. human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) and tuberculosis (TB)), non-communicable diseases (e.g. diabetes and cardiovascular disease), high prevalence of injuries as well as maternal and child health problems (Mayosi, Flisher, Lalloo, Sitas, Tollman & Bradshaw, 2009; Coovadia, Jewkes, Barron, Sanders & McIntyre, 2009; Christian, 2014; Smith, 2016). The quadruple burden of disease, prevalent amongst the previously disadvantaged population groups<sup>1</sup> (Coovadia et al., 2009), places a liability on state resources in South Africa.

South Africa has a two-tier health system, namely public healthcare and private healthcare (Van den Heever, 2011). Public healthcare services are provided by the different spheres of government, i.e. national, provincial and local government (Wessels, 2014) and serve the majority of the South African population, approximately 83 per cent (Smith, 2016). On the other hand, private healthcare services are provided by general practitioners, specialists, pharmacists and private hospitals outside the government spheres (Wessels, 2014) and serve the minority, 17 per cent of the South African population (Smith, 2016). The two-tier health system exhibits extreme inequality (Burger & Christian, 2018) which translates into inequity in health outcomes across different demographic factors, such as socio-economic status, race, age, and geo-type.

The South African government allocates its available resources according to the expenditure assignment outlined in the fiscal policy. About 8.3 per cent of its budget in 2017 was spent on financing public healthcare (Gordhan, 2017). This proportion is high when compared to other upper-middle-income countries<sup>2</sup> that spend 6.3 per cent of GDP on public healthcare (Smith, 2016), yet their health outcomes are superior to that of South Africa (Van den Heever, 2011).

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<sup>1</sup> The previously disadvantaged population groups in South Africa are Blacks, Coloureds and Indians, as well as females and people with disabilities.

<sup>2</sup> Thailand and Turkey are examples of upper-middle income countries that spend less in health but perform better in health outcomes compared to South Africa (WHO, 2017).

Government spending on healthcare in South Africa does not translate into desired healthcare outcomes such as longer life expectancy and lower morbidity and mortality rates.

Access to healthcare, particularly affordability and availability aspects – have been prioritised by the South African government and are now regarded as less of a barrier to healthcare (Christian, 2014). However, problems related to the quality of healthcare remain. This is implicitly reflected in the revealed preference for private healthcare even amongst the poorest groups of the population (Van der Berg, Burger, Theron, Venter, Erasmus & Van Eeden, 2010). Poor-quality public healthcare – perceived or real – poses a major challenge for the South African government, researchers and policy makers who aim to find ways of improving health outcomes (Smith, 2016).

The quality of healthcare is increasingly seen as an important contributor to health outcomes (Christian, 2014; Das & Hammer, 2014; Smith, 2016; Burger, Ranchhod, Rossouw & Smith, 2016). Many developing countries, including South Africa, are now starting to address issues of healthcare quality. This is evidenced by the South African government's increasing emphasis on improving the quality of healthcare through reform policies such as the National Development Plan (NDP) and National Health Insurance (NHI) Plan (Burger et al., 2016).

As previously alluded to, the South African population sees public healthcare services as an inferior good (Christian, 2014). This means that the demand for public healthcare services decreases as income increases (Havemann & Van der Berg, 2003). For instance, individuals from poor households are willing to pay out-of-pocket (OOP) to consult a private doctor when they are faced with an illness because they perceive public healthcare to be an inferior good (Christian, 2014). This leads us to investigate the quality of public healthcare services in South Africa from the perspective of the end-user, the patient.

The research problem stated above translates into the following research question: What are the determinants of patient satisfaction with public healthcare in South Africa?

## **1.2 Objectives of the study**

- Determine the levels and trends of patient satisfaction and complaints reported when accessing public healthcare services in South Africa from 2019 to 2016.

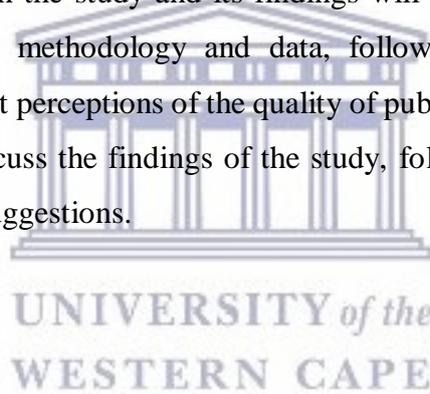
- Identify factors associated with patient satisfaction of public healthcare services in South Africa from 2009 to 2016.

### **1.3 Relevance**

This study aims to look at the demand-side of patient perceptions about the quality of healthcare. It becomes important to address demand-side issues as a way of understanding what drives health-seeking behaviour, and ultimately health outcomes. The findings of the study may contribute to demand-side health economics literature, specifically on perceptions of the quality of healthcare services delivered at public facilities in South Africa.

### **1.4 Structure of the study**

Chapter One provides a brief overview of the South African healthcare system and explains the focus and motivation of the study. Chapter Two reviews the theoretical and empirical framework by means of which the study and its findings will be structured and interpreted. Chapter Three describes the methodology and data, followed by Chapter Four, which empirically investigates patient perceptions of the quality of public healthcare in South Africa. Chapter Five reviews and discuss the findings of the study, followed by Chapter Six, which concludes with some policy suggestions.



## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

There are several theories that explain the relative importance of healthcare to individuals, government, economists, policy makers and other stakeholders. The theoretical literature review of this chapter will unpack some of these theories: human capital, Grossman's model of health demand, and the concept of acceptability – an access dimension - and how it relates to the perceived quality of care. These theories will provide a framework with which the study and its findings will be structured and interpreted.

The empirical literature review explores the existing evidence regarding demand-side perspectives of the quality of services delivered at public healthcare facilities in Brazil, Russia, India, China and South Africa, i.e., the BRICS countries. This involves describing some of the factors that influence patient satisfaction levels when using public healthcare facilities.

### 2.2 Theoretical literature

#### 2.2.1 Human capital

In earlier centuries, economists often shied away from the notion that individuals largely invest in themselves since the thought was offensive to some. Adam Smith (1776) was the first classical economist to include human capital in his definition of capital. The latest rebirth of the human capital theory is based on the writings of Schultz (1961). In his seminal work, he describes the importance of human capital as the need to invest in individuals' education, health and training. Individuals invest in themselves to improve their capabilities, enhance productivity and increase their monetary earnings (Becker, 1994), i.e. to increase the pool of choices available to them to enhance their welfare (Schultz, 1961). This rationale justifies the investment in human capital.

Over time, economists realised the importance of investment in human beings as a source of progress and for economic growth (Schultz, 1961; Becker, 1994). There has also been an emergence of endogenous growth literature that includes the role of human capital as a determinant of economic growth, where investment in human capital is regarded as a significant contributor to economic growth by stimulating technological advancement or enhancing labour productivity (Becker, 1994; Laroche, Mérette, & Ruggeri, 1999).

Laroche et al. (1999) define human capital as the accumulation of investment in activities, such as education, health, on-the-job training, and migration to improve the productivity of individuals in the labour market. Human capital is dissimilar to other forms of capital investment like physical capital (Schultz, 1961). This is because it is challenging to differentiate between expenditures for consumption and expenditures for investment when considering human capital (Laroche et al., 1999). Laroche et al (1999) argues that pure consumption is expenditure that fulfils consumer preferences and does not improve human capabilities. Pure investment in human capital, in turn, would be an expenditure that improves human capabilities without fulfilling consumer preferences (Schultz, 1961). This makes the investment in human capital a unique form of capital investment.

For this study, we are interested in understanding investment in health, which is considered a form of human capital viewed as unique relative to other forms (Mushkin, 1962; Fuchs, 1966; Becker, 1994). Investment in health is important for the wider economy because it promotes well-being, enhances the quality of human resources, which is important for productivity and contributes significantly to economic prosperity. Investing in health increases the amount of time spent in both non-productive and productive activities<sup>3</sup> (Becker, 1994). This may increase the level of economic activity and earnings.

In support of this view, Grossman (1972) explained that investment in health determines the total amount of time an individual has to participate in the economy and enhance economic growth. For example, when an individual invests in his/her health, the stock of health increases and simultaneously reduces the number of sick days. The individual will have more time for labour and leisure. It follows that investment in human capital will, therefore, affect wages and salaries (Schultz, 1961). Therefore, investment in health enhances the capabilities of individuals, and the consequent improved capabilities are part of the human agent, as they are not sold in the market.

In conclusion, individuals invest in their health expecting a return in their investment which is enhanced quality of human resources and higher life expectancy through improved health (Mushkin, 1962). Hence, patient satisfaction of the healthcare services will influence their

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<sup>3</sup> Examples of productive activities include working, farming and doing schoolwork, whereas examples of non-productive activities include watching movies, playing games and sleeping.

decision regarding the type of facility (public or private) to visit to invest in their health to obtain higher returns. Therefore, patient satisfaction is an important factor in health investment i.e. individuals tend to visit healthcare facilities where the expected return of investment which is patient satisfaction is high.

### 2.2.2 Grossman's model of health demand

Grobler and Stuart (2007) explain that to achieve the desired health outcomes, health policies should not only focus on the supply of healthcare, but also consider the demand for healthcare. According to Besley (1989), the analysis of the demand side plays a central role in the modern behavioural economic analysis. Similarly, the analysis of the demand for healthcare is important for policy makers to identify factors that influence utilisation of healthcare services.

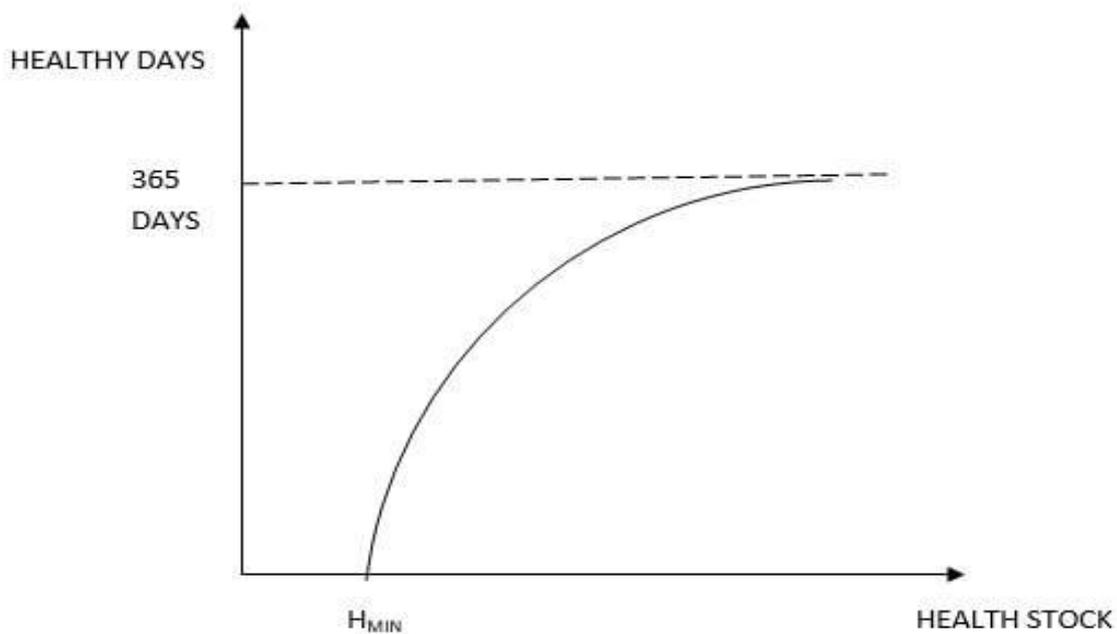
The widely used Grossman model serves as a reference point in the field of health economics in conceptualising the complex demand for health (Hren, 2012), i.e. it provides a framework that models the complex decisions people make regarding their health. Grossman (1972) constructed a derived demand model for the commodity “good health”, i.e. goods and services are inputs in the production of health. This derived demand model is still consistent with the law of demand, as the demand for health is negatively correlated with the shadow price of health (Grossman, 1972). Even though the demand for health is consistent with the law of demand, it is not similar to the demand for other commodities. When consumers purchase medical services, they do not demand these services per se but rather demand “good health” (Grossman, 1999).

Grossman (1972 & 1999) explains that an individual gains an initial stock of health at birth, but this stock of health depreciates with age and can be increased by investing in health through various ways – such as living a healthy life, or going for regular check-ups. The cost of investing in health includes the direct cost and the opportunity cost of the time used when producing health. The model, therefore, assumes that individuals choose their life expectancy depending on the level of investment in their production function of health (Grossman, 1972).

According to Grossman (1972), the resources that are allocated to its production determine the state of health of an individual. He describes health as an output that is produced by households whose direct inputs include medical care, time of the consumer, employment status, income, housing conditions, heating, diet and lifestyle. The production function of health also depends

on certain ‘environmental variables’, such as the level of education of the producer, social class and work environment. Figure 2.1 shows that health is a productive good, which produces healthy days.  $H_{MIN}$  in the figure represents the minimum level of health stock, where the production of healthy days at this point is zero and the natural maximum of 365 days. Greater health stock leads to healthier days with diminishing returns, as illustrated by the concave production function in the figure.

Figure 2.1: Grossman model–production function of healthy days

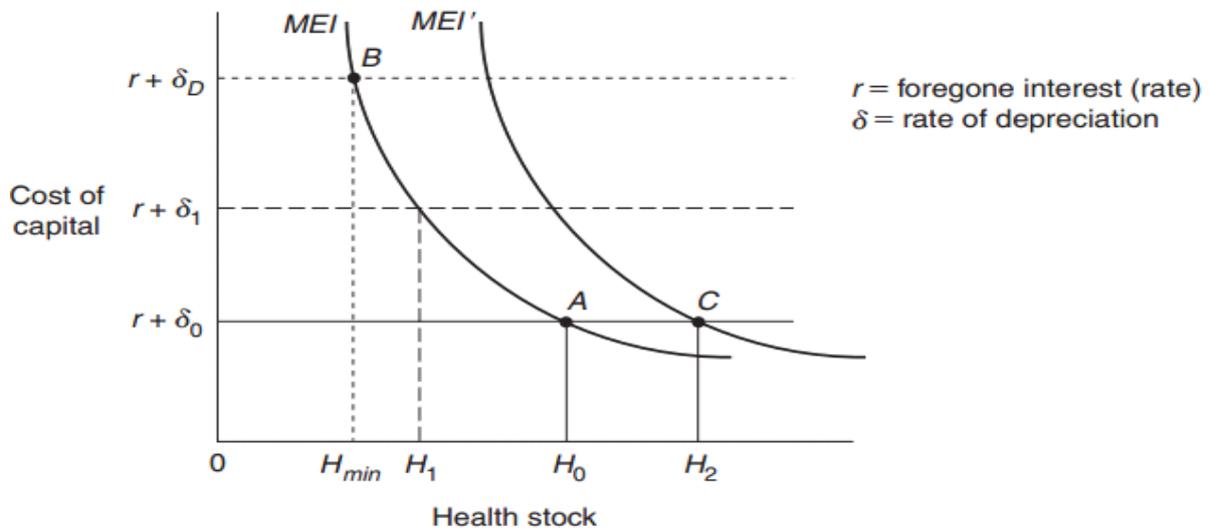


Source: Grossman (1972:233)

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The educational attainment level of an individual is crucial in the production process of health as it influences the efficiency of the production process (Grossman, 1999). Well-educated individuals are more efficient in the production of health because they gain more for each unit of health investment due to superior information assimilation skills, e.g. they can read and understand important information regarding their health and have better treatment adherence compared to the less-educated individuals (Grossman, 1972). In Figure 2.2 below, an increase in education would raise the marginal efficiency of health capital and shift the marginal efficiency of investment (MEI) schedule to the right, where  $H_2$  represents the health stock of the well-educated individuals. The assumption is that well-educated individuals recognize the significant negative consequences of non-adherence to treatment on their productivity.

Figure 2.2: Grossman model–production and health production



Source: Grossman (1972:246)

The perceived quality of healthcare services is associated with the demand for healthcare services (Aljaberi, Juni, Al-Maqtari, Lye, Saeed, Al-Dubai, & Shahar, 2018; Wellay, Gebreslassie, Mesele, Gebretinsae, Ayele, Tewelde, & Zewedie, 2018). It is worth noting that perceived quality of healthcare services is an important driver of patient satisfaction. For instance, high-perceived quality of healthcare in either the public or the private healthcare sector has the ability to attract patients and it is correlated with high patient satisfaction. Thus, the Grossman model of health demand is an important framework for the analysis of this study as it models the complex decisions individuals make regarding their health.

Although the Grossman model is still largely used in health economics, it is not without criticism primarily for not considering uncertainty, which affects the demand for health, i.e. the random occurrence of illness or stochastic shocks (Zweifel, 2012). Furthermore, the assumption that people can predict their life expectancy (that is, they know their age of death with certainty) is not a realistic. In response to the criticism of the certainty assumption, Grossman propose to assign a probability distribution of the depreciation rate for a given time interval (Hren, 2012). For future research, some of the simplifying assumptions of the model would have to be redefined to better describe the real-world situation and improve the accuracy of the model.

### 2.2.3 Acceptability and perceived quality of care

The perceived quality of healthcare is a demand-side aspect linked to access to healthcare. How patients perceive the quality of healthcare affects their health-seeking behaviour, and hence the demand for good health could be influenced by the perceived quality of service delivered. According to Van der Berg et al. (2010), patients with low-quality perceptions of public healthcare services prefer to utilise private healthcare facilities. This occurs even though private healthcare is costly while public healthcare is freely available at a primary healthcare level (Van der Berg et al., 2010).

Acceptability, a subjective concept, poorly captured and often neglected dimension of access to healthcare (Dillip, Alba, Mshana, Hetzel, Lengeler, Mayumana, Schulze, Mshinda, Weiss & Obrist, 2012). Thiede, Akweongo and McIntyre (2007), building on the conceptual access framework by Penchansky and Thomas (1981), describe acceptability as the nature of service provision and how it is perceived by individuals and communities. Patients prefer service providers that accommodate their beliefs and sensitivities when delivering health services (Thiede et al., 2007). The interaction between the expectations of providers and patients influences the acceptability level of health services. For example, when the interaction between the providers and patients is governed by mutual respect, this influences the acceptability of the health services in a positive way.

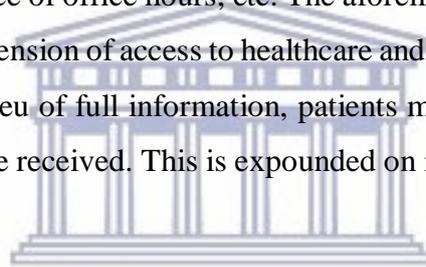
Perception is a crucial concept of the acceptability dimension of access to healthcare (Penchansky & Thomas, 1981). Patient perceptions are complex as they are subjective and influenced by the personal preferences and expectations of the individuals. Patient perception is a subjective function of personal preferences, individual social environment and expectations for healthcare service delivery (Ware, Snyder, Wright & Davies, 1983). In addition, patients react to service provider attributes such as age, sex, ethnicity, profession type, friendliness, type of facility, the neighbourhood of the facility, and religious affiliation of facility or provider (Penchansky & Thomas, 1981). For instance, some women may prefer to be examined by a female nurse instead of a male nurse.

The health service provider's attitude towards patients is another important component of the acceptability dimension of access to healthcare. Healthcare providers may possess attitudes regarding what they consider admissible patients characteristics (Penchansky & Thomas, 1981). In a study done in Tanzania, some healthcare providers showed an unwillingness to

serve welfare patients (Dillip et al., 2012). The attitude of service providers towards patients may thus affect the acceptability of healthcare services to users.

Mutual respect between the patient and the healthcare provider is essential for the acceptability dimension of access to healthcare (Thiede et al., 2007). Respect is morally important for human interactions, hence individuals expect it (Dickert & Kass, 2009). The degree of fit between the attitudes and expectations of healthcare providers and patients depends on whether there is mutual respect. Dickert and Kass (2009) explain that patients who perceive that they are being treated respectfully might experience improved clinical outcomes and greater satisfaction with their care, both of which may positively impact their future health-seeking behaviour.

The acceptability dimension is also concerned with questions that deal with patients' experience of services, e.g. waiting time at the health facilities, cleanliness and appearance of the facility, and the convenience of office hours, etc. The aforementioned are important factors affecting the acceptability dimension of access to healthcare and are used as proxies to measure the level of acceptability. In lieu of full information, patients may often rely on these proxies to determine the quality of care received. This is expounded on in section 2.3, which describes the empirical literature.



Consumption of healthcare, *ceteris paribus*, improves health outcomes. It is therefore crucial to address the acceptability dimension of access – a proxy of perceived quality of care – when designing health policies since it feeds directly into health outcomes. Therefore, the acceptability theory allows the researcher to explore correlates of health-seeking behaviour. This is because the acceptability theory captures both the quality aspect of the healthcare service and cultural perception issues which influences patient preferences (Smith, 2016). In addition, acceptability is an important dimension of healthcare access frameworks considering the fact that acceptability may not only influence the health-seeking behaviour but also has the ability to impact health outcomes. There is a direct link with higher user acceptability with better health-seeking behaviour which result in improved health outcomes. Hence, the acceptability theory is adopted for the analysis of this study. The acceptability theory allows the researcher to implicitly consider the quality of healthcare by explicitly investigating the perception aspect of the acceptability dimension, i.e. an analysis of patient complaints and patient satisfaction.

## 2.3 Empirical literature

According to Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana and Chersich (2011), a better understanding of barriers to accessing healthcare – from a user’s perspective – is essential for health outcome improvements. The empirical literature review will discuss the users’ experience of service delivered at public healthcare facilities of the emerging economies, focusing particularly on the BRICS countries. This will unpack the literature that is related to factors that influence patient perceptions of the quality of public healthcare based on patient experiences. Patients report their experiences through complaints and perceived satisfaction with the healthcare services received. Local empirical studies predominantly analysed the GHS data<sup>4</sup>. These surveys include questions that capture complaints about users’ visits to public healthcare facilities. The focus will be on waiting times, staff attitudes, cleanliness of facility, drug availability, and hours of operation. The surveys also include findings on the satisfaction levels of patients who access public healthcare facilities. This will shed light on some of the important determinants of the perceived quality of services at public healthcare facilities.

### 2.3.1 Complaints

#### 2.3.1.1 Waiting times

Time is a limited resource and therefore individuals have to decide on how best to allocate it between work and leisure (Becker, 1994; McIntyre & Thiede, 2003). It is therefore an important determinant of patient satisfaction in healthcare (Alswat, Sammy, Serwah & Abdel-Wahab, 2015). When individuals are faced with an illness, they are forced to take time out from their daily activities, including work, to seek healthcare. This implies an opportunity cost, which is reasonably higher for poorer individuals when seeking healthcare. Understandably, patients would not want their time to be wasted when visiting healthcare facilities.

Long waiting times at healthcare facilities increase the opportunity cost for patients, negatively influence the patient-health worker interaction as well as the perceived quality of care, and decrease the efficiency of service delivery (Daniels, 2015). Excessive waiting times may be experienced at different departments within facilities such as admission, pharmacies and waiting rooms (Mokgoko, 2014). This may lead to frustration and create negative perceptions about the quality of services delivered at these healthcare facilities. In a study done at primary

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<sup>4</sup> Other nationally representative survey data include NIDS and LCS.

healthcare facilities in Cape Town, Daniels (2015) explained that in the case of an emergency, long waiting times might increase the likelihood of morbidity.

Gouveia, Souza, Luna, Souza Junior, and Szwarcwald (2005) explained that in Brazil waiting time at public healthcare facilities depends on the location of the consultation. Public healthcare facilities in Brazil received a poor evaluation of 28 per cent in terms of waiting time, from users of the Unified Health System (SUS) (Szwarcwald, Damacena, Souza Junior, Almeida, & Malta, 2016). In support of this view, Gouveia et al. (2005) showed that 54.6 per cent of SUS outpatient care and 32.1 per cent of SUS inpatient care patients were dissatisfied with waiting time. Similarly, Fotaki (2006) ranked the main reasons of dissatisfaction with the quality of public healthcare services in Russia from one to eight in a decreasing order and found that waiting time had a rank of four.

Kumari, Idris, Bhushan, Khanna, Agarwal and Singh (2009) investigated patient satisfaction in the government allopathic health facilities in India. This study was conducted with the aim of determining the areas and causes of low satisfaction among patients, in order to suggest methods for improvement. The results showed that 62.5 per cent of patients attending tertiary level health facilities had to wait for more than 30 minutes, which resulted in low satisfaction (Kumari et al., 2009). Similarly, in China, patients who waited longer, perceived their length of waiting time as less acceptable i.e. longer waiting time is negatively associated with patient satisfaction (Xie & Or, 2017).

According to Hasumi and Jacobsen (2014), 34.8 per cent of the respondents in the 2010 GHS who experienced problems during their last visit to a public healthcare facility in South Africa complained about long waiting times. Similarly, Burger, Bredenkamp, Grobler and & Van Der Berg (2012) analysed the pooled version of the 2002-2008 GHS dataset and found that 40.7 per cent of patients reported long waiting times as the main complaint about public healthcare facilities. In support of this, Mokgoko (2014) stated that even though there had been some technological improvement in healthcare, public healthcare users still experience unacceptably long waiting times. Cimona-Malua (2010) conducted a study at Saint Rita's Hospital emergency department in Limpopo and found similar results - that recurrent complaints from patients were about prolonged waiting times.

The most cited reason for long waiting times at public healthcare facilities in South Africa is an overburdened public healthcare system (Smith, 2016). Another reason for the long waiting times at public healthcare facilities is that most patients arrive in the morning. This creates congestion and logistical problems for these public healthcare facilities (Daniels, 2015). Hence, there is a rising need for an intervention that would reduce the waiting time, thereby mitigating its negative impact on health-seeking behaviour.

### 2.3.1.2 Staff attitudes

The attitude and interpersonal skills of healthcare workers are important in influencing the health-seeking behaviour of patients and overall health outcomes (Gilson & McIntyre, 2007). The attitudes of healthcare workers are crucial for the user's experience because they influence the perceived quality of care (Gilson & McIntyre, 2007; Rispel, 2016). Individuals by nature like to be treated with respect when they have a health issue (Kollapen, 2007). The most important soft skills required for healthcare workers are friendliness, good communication skills and client responsiveness (Gilson & McIntyre, 2007).

In Brazil, 14 per cent of SUS users in 2003 complained about the attitudes of public healthcare workers (Gouveia et al., 2005); the 2006 Fotaki study ranked the main reasons of dissatisfaction with the quality of public healthcare services in Russia from one to eight in a decreasing order and found that healthcare workers' attitudes had a rank of eight. Similarly, Lim, Yang, Zhang, Feng and Zhou (2004) explained that in China, patients preferred to use private healthcare because of bad staff attitudes in public healthcare facilities. On the contrary, in India, 58.5 per cent of public healthcare users were highly satisfied with the relationship healthcare workers had with patients (Sarpal, Gupta, Goel, & Galhotra, 2013). In support of these results Saini, Saini, Parasuraman and Rajoura (2013) found that 78.8 per cent of patients in India were satisfied with the attitudes of public healthcare workers.

In South Africa, healthcare worker attitudes present a challenge in the public sector. Burger and Swanepoel (2006) used the 2003 GHS to show that 12.52 per cent of users of public healthcare complained about healthcare workers' rudeness. Similarly, Burger et al. (2012), using the pooled version of the 2002-2008 GHS, showed that 10.7 per cent of the respondents complained about the rudeness of healthcare workers. Gilson and McIntyre (2007) explained that despite the implementation of policies that prioritise patient rights (Patients Right Charter and Batho Pele Policy of 1997), the problem of healthcare worker rudeness in public healthcare

facilities continues to be widely reported as a constraint to public healthcare service use. Hasumi and Jacobsen (2014) investigated healthcare service problems in South Africa using 2010 GHS data. They found similar results to the aforementioned researchers: that 10.1 per cent of participants, who experienced at least one or multiple problems during their last visit to a public healthcare facility, complained about public healthcare workers who were uncaring or who turned patients away.

#### 2.3.1.3 Cleanliness of facility

Ensuring sanitary healthcare facilities is important for infection control since it affects the quality of care provided (Kollapen, 2007). Maintaining a clean healthcare facility is crucial to avoid complications during the care and recovery process of patients (Markkanen, Quinn, Galligan & Bello, 2009). Besides maintaining infection control, the cleanliness of a healthcare facility contributes to how patients perceive the quality of care delivered (Kollapen, 2007). Markkanen et al. (2009) state that a clean healthcare facility is comforting to patients and their families and provides an impression of good quality care.

In Brazil, 20.8 per cent of outpatient care and 21.9 per cent of inpatient care patients were dissatisfied with the cleanliness of the SUS facilities (Gouveia et al., 2005). Similarly, in a study conducted in India, 11.5 per cent of patients in public healthcare facilities complained about dirty toilets in these facilities (Galhotra et al., 2013). In support of this view Saini et al. (2013) showed higher levels of dissatisfaction with cleanliness in public healthcare facilities in India, which was reported by 61.1 per cent of patients.

Burger and Swanepoel (2006), using the 2003 GHS data, found that 6.64 per cent of public healthcare facility users complained about facilities not being clean. Similarly, Saidi (2007) stated that South African public healthcare users were concerned about the hygiene levels or the cleanliness of public healthcare facilities when seeing blood on the floors or unchanged linen. Hasumi and Jacobsen (2014), unlike Burger and Swanepoel (2006), found lower levels of complaints; 3.7 per cent of the respondents in the 2010 GHS who experienced problems during their last visit to public healthcare facilities complained that those were unclean.

#### 2.3.1.4 Drug availability

From the perspective of patients, the availability of prescribed medicines in the healthcare facility is one of the most easily noticed signs of quality of care (McIntyre & Ataguba, 2017).

The probability of a better health outcome increases when patients receive the prescribed medication as directed by the pharmacist (Peltzer, Phaswana-Mafuya, Mohlala, Ramlagan, Davids, Zuma & Mbelle, 2005). This underscores the importance of the availability of prescription drugs in healthcare facilities for the patients.

Gouveia et al. (2005) revealed that 24.1 per cent of outpatient care and 9.2 per cent of inpatient care patients for SUS users in Brazil complained about the unavailability of prescribed medication in public healthcare facilities. Similarly, a study done in India found that 42 per cent of the respondents complained about the unavailability of the prescribed drugs (Saini et al., 2013). On the other hand, the earlier reviewed 2006 Fotaki study found that lack of drugs had a rank of one, which shows that this forms part of healthcare challenges in Russia.

Burger and Swanepoel (2006), as well as Burger et al. (2012), using the 2003 GHS and pooled 2002-2008 GHS data respectively, found that about 14 per cent of users of public healthcare facilities complained about the unavailability of drugs. Burger (2007) explained that public healthcare users complained about the poor supply of drugs at public health facilities, evident by the lack of prescribed drugs at these facilities. Hasumi and Jacobsen (2014), using 2010 GHS data, found that one of the common problems experienced by public healthcare users was the unavailability of prescribed drugs. In addition, 14.1 per cent of the respondents complained that they experienced the problem of unavailability of prescribed drugs during their last visit to the public healthcare facility (Hasumi & Jacobsen, 2014).

#### 2.3.1.5 Hours of operation

There is an indirect cost of healthcare: the cost of time lost to undertaking normal productive activities due to illness or being injured (Schultz, 1961; Becker, 1994; McIntyre & Thiede, 2003). When individuals are faced with a decision to seek healthcare they consider the forgone time that would be spent in normal productive activities for the time spent in seeking healthcare (McIntyre & Thiede, 2003). It is important that the opening times of healthcare facilities are convenient for the working population group to enable them to access healthcare while minimising productive time lost.

Protasio, Gomes, Machado and Valenca (2017) explain that it is important that the hours of operation of healthcare units meet user needs in all regions in Brazil to improve user

satisfaction. Albuquerque, Lyra, Farias, Mendes and Martelli (2014) analyse the accessibility of basic healthcare services using PMAQ-AB data in Pernambuco. The results revealed that 86.1 per cent of the users in Pernambuco were satisfied with the hours of operation of the healthcare facilities. On the contrary, in India, Banerjee, Deaton and Duflo (2003) investigated healthcare delivery in a poor rural area called Rajasthan. Their results showed that the healthcare facilities were closed 56 per cent of the time during regular opening hours. These results were higher when compared to those of 43 per cent of absenteeism found in a nationally representative survey in India (Chaudhury & Hammer, 2003).

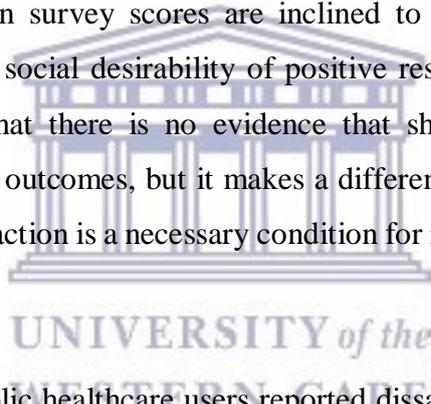
According to various studies (e.g. Hasumi & Jacobsen, 2014; Burger & Swanepoel, 2006), public healthcare users complain about the opening times of health facilities not being convenient. Burger and Swanepoel (2006), using 2003 GHS data, found that 7.69 per cent of the respondents complained about the opening time of the facility not being convenient. While Hasumi and Jacobsen (2014), using 2010 GHS data, found a lower proportion compared to Burger and Swanepoel (2006), 6.8 per cent of the respondents in their study complained about the opening time of the facility not being convenient. Currently, primary healthcare facilities in South Africa operate during working hours and not over weekends.

### 2.3.2 Satisfaction levels

Satisfaction with healthcare services is a complex concept that includes clinical dimensions, personal preferences and the expectations of individuals (Burger et al., 2016). This is further complicated by the fact that individuals can adjust their expectations to match their experiences. For example, patients who are accustomed to rude healthcare workers may rate their evaluation of service differently from those who have expectations of caring healthcare workers. Satisfaction is one of many tools a researcher can use to get an idea of the quality of care. Dissatisfaction becomes important in healthcare when it acts as a barrier to accessing healthcare. Patient satisfaction is regarded as a function of patient perception about the quality of healthcare and will be used as a proxy for the quality of healthcare. This approach enables a more sensitive evaluation of healthcare from the patient's point of view (Fitzpatrick & Hopkins, 1983). The determinants of patient satisfaction in healthcare could be attributed to the user experience of the interaction with healthcare workers, the standard of the health facilities (including cleanness, maintenance), waiting time, health worker attitudes (friendliness or rudeness) and opening times. These determinants of patient satisfaction also affect patient

preference of the type of healthcare facility to use irrespective of whether the patient is poor or affluent.

However, using patient satisfaction as a measure of the quality of care is not without flaws. The concept of patient satisfaction is complex as the ratings are subjective and are influenced by the personal preferences and expectations of patients (Ware et al., 1983). The fallibility of self-reported information, the respondent's responsiveness to perceived social norms and time pressure can compromise the reliability of self-reported information (Burger et al., 2016). Studies in South Africa reveal that users of public healthcare facilities in household surveys indicate high levels of satisfaction with healthcare service received while they simultaneously complain about problems such as long waiting time, rude staff and unavailability of drugs (Burger & Swanepoel, 2006; Hasumi & Jacobsen, 2014; Burger et al., 2016). Williams, Coyle and Healy (1998) explain that patient satisfaction measures could have a positivity bias. This entails that patient satisfaction survey scores are inclined to be overly positive, which is associated with the perceived social desirability of positive responses (Burger et al., 2016). Burger et al. (2016) argue that there is no evidence that shows that patient satisfaction significantly influences health outcomes, but it makes a difference in terms of health-seeking behaviour. Thus, patient satisfaction is a necessary condition for improved health outcomes but it is not a sufficient condition.



In Brazil, 23.3 per cent of public healthcare users reported dissatisfaction with the healthcare services they received (Protasio et al., 2017). In 2001 and 2010, 42.8 per cent and 43.2 per cent respectively of patients in Russia reported definite dissatisfaction with the public healthcare system (Footman, Roberts, Mills, Richardson & McKee, 2013). For patients in India, the overall level of dissatisfaction with public healthcare service was 23.9 per cent (Saini et al., 2013).

Burger and Swanepoel (2006), using 2003 GHS data, revealed that users of public healthcare facilities have lower levels of satisfaction compared to users of private healthcare facilities. Burger (2007), comparing the Demographic Health Survey (DHS) 1998 with the GHS 2003, found that there was a growing dissatisfaction with public healthcare services between 1998 and 2003. Looking at the 1998 DHS, 88.31 per cent of public healthcare users reported to be satisfied, compared to 81.78 per cent satisfied users, using the 2003 GHS. Van den Heever (2011), using the 2010 GHS showed similar results: that 60.4 per cent of public healthcare

users were satisfied with public healthcare services. Similarly, Christian (2014) used the 2002 and 2012 GHS data, and found that 23.24 per cent and 15.10 per cent of patients respectively, reported that they were somewhat satisfied with public healthcare services, 57.74 per cent and 62.17 per cent of patients respectively, reported to be very satisfied with public healthcare services.

### 2.3.3 Complaints versus reported satisfaction

Users of public healthcare facilities complained about a number of factors that include long waiting times, staff rudeness, hours of operation, and availability of drugs (Burger & Swanepoel, 2006; Burger, 2007). Using the household survey Burger and Swanepoel (2006) showed that users of public healthcare facilities were significantly more likely to complain. Similarly, Burger et al. (2016) stated that numerous general household surveys highlight high levels of complaints about healthcare providers and the care received. Even though General Household Surveys show that patients have numerous complaints about healthcare facilities, at the same time patients also report high levels of satisfaction with the healthcare services, which makes a researcher ponder the underlying meaning of these results (Burger & Swanepoel, 2006; Burger, 2007).

Evans and Tarneberg (2017) explored healthcare quality and information failure evidence from Nigeria. The study looked at the possibility that patients may have insufficient knowledge to detect the quality of healthcare services. The results revealed that patient satisfaction is a weaker indicator of clinical quality and that patients may face a broad information failure.

Dunsch, Evans, Macis and Wang (2018) investigated the bias in patient satisfaction surveys in Nigeria. The results of this study reveal that how the questions are framed influences the response of patients. This entails that it is easy to manipulate patient satisfaction ratings depending on how you frame the questions. When the questions are framed with positive statements, there is an upward bias, while if the questions are framed with negative statements there is a lower level of satisfaction. In the Nigerian study, patients who were randomly given negatively framed statements showed lower levels of satisfaction (87 per cent) when compared to patients who were given positively framed statements, who showed higher levels of satisfaction (95 per cent) (Dunsch et al., 2018). This highlights the fact that healthcare providers and policy makers should consider ways of dealing with the bias in patient satisfaction surveys

and also consider using patient satisfaction measures simultaneously with other more objective measures of quality.

#### 2.3.4 Socio-demographic characteristics associated with patient satisfaction

Aldosari, Tavares, Matta-Machado, & Abreu (2017) investigated factors associated with patient satisfaction with the treatment by dentist in public primary health care in Brazil. The results revealed that higher patient satisfaction was associated with lower education, positive reception, low expectations, and patient's perception of the clinic conditions. While lower patient satisfaction was associated long waiting times and patients that are employed (Rech, Hugo, Giordani, Passero, & Hilgert, 2018). On the other hand, in China Wang, Maitland, Nicholas & Haggerty (2019) investigated the determinants of overall satisfaction with public clinics. The results revealed that dignity (i.e. being treated respectfully) and communication (i.e. clear explanation by the physician) were positively correlated with overall satisfaction.

Furthermore, a study conducted in in Russia assessed patient satisfaction with primary healthcare services. The study found that better satisfaction with primary healthcare services was associated with respondents from polish ethnicity and living in a city rather than a village (Kavalnienė, Deksnyte, Kasiulevičius, Šapoka, Aranauskas & Aranauskas, 2018). Similarly, Galhotra, Sarpal, Gupta, & Goel (2013) conducted a cross-sectional study on patient satisfaction towards services received at a rural public healthcare center in India. The results indicated that less educated individuals were highly satisfied with the healthcare services compared to more educated individuals. Similarly, Myburgh, Solanki, Smith, & Laloo (2005) explored patient satisfaction with healthcare providers in South Africa. The study found that both race and SES were significant predictors of patient satisfaction with healthcare services. Particularly, white and high SES respondents were likely to report high satisfaction levels compared to black and low SES respondents.

#### **2.4 Conclusion**

In South Africa, challenges with the quality of healthcare service delivered at public healthcare facilities persist (Smith, 2016). The literature review has revealed that the acceptability dimension – which implicitly focuses on patient perceptions of the quality of care – is a poorly captured dimension of access to healthcare (Dillip et al., 2012). A number of factors that have been reviewed in the literature influence patient perceptions about the quality of healthcare. Based on the literature review, reducing waiting time, improving public healthcare worker attitudes, maintaining clean healthcare facilities, introducing flexible operating hours and

increasing drug availability remain crucial in order to promote positive patient experiences, and therefore perceptions, of public healthcare. This may positively influence health-seeking behaviour – and ultimately health outcomes.

The theoretical literature review explained the concepts of human capital, Grossman's model of health demand and acceptability as an access dimension. The human capital theory provides a theoretical explanation of the importance of investing in health. The need to invest in health leads to the demand for healthcare. Grossman's model of health demand provides a framework to explain the decisions people make regarding their health. The demand for healthcare is influenced by acceptability, a component of access to healthcare. The acceptability dimension of access is a proxy for perceived quality of care, feeding directly into health outcomes. These theories provide a framework with which the study and its findings will be interpreted.

The empirical literature review focused on the perceived quality of services delivered at public healthcare facilities from a user's perspective. The focus was placed on some of the important determinants of the perceived quality of services at public healthcare facilities for the BRICS countries, such as waiting times, staff attitudes, cleanliness of the facility, drug availability, and hours of operation. The general findings from the literature in terms of complaints is that users of public healthcare facilities in BRICS countries significantly complain about a number of factors. The satisfaction levels of patients who access public healthcare facilities for the BRICS countries were also reviewed. The literature reveals that users of public healthcare facilities in BRICS countries are more likely to report high levels of satisfaction with the healthcare services.

## CHAPTER THREE: METHODOLOGY AND DATA

### 3.1 Introduction

The study makes use of a quantitative approach to investigate patient perceptions of the quality of public healthcare service in South Africa. The methodology chapter begins with a description of the data and its limitations. This is followed by a specification of the univariate and bivariate analyses as well as the econometric model used. A description of the variables of interest and the sample of interest follows.

### 3.2 Data

The empirical analysis will be conducted using the publicly available GHS data from 2009 to 2016. StatsSA conducts the GHS annually every July since 2002 with the purpose of determining the progress of development in the country. The GHS has a large sample size of approximately 30, 000 households and 100, 000 individuals. The survey interviews household members and residents in workers' residences in the nine provinces of South Africa. The survey does not interview collective living quarters such as student residences, old age homes, hospitals, prisons, and military barracks. Since the GHS is a large, nationally representative dataset, using it ensures statistical power for the empirical analysis.

Much of the non-income welfare (not related to labour market activities) was no longer asked in the October Household Survey (OHS) since the introduction of the Labour Force Survey (LFS) in 2000. Instead, these questions were asked in the GHS when it was introduced in 2002. The GHS also contains information regarding education, health and social development, housing, household access to services and facilities, food security, agriculture and ownership of private assets (such as television, fridge, cell phone and personal computer) since it was designed to measure the living conditions of South Africans, amongst other uses.

Furthermore, the scope of the GHS includes household characteristics and individual characteristics. Household characteristics captured include dwelling type, home ownership, access to water and sanitation, access to services, transport, household assets, land ownership, and agricultural production. Individual characteristics captured include demographic characteristics, relationship to household head, marital status, language, education, employment, income, health, fertility, mortality, disability, and access to social services. The lowest level of geographic aggregation for the dataset is province and metropolitan

municipality, where this applies. Particularly important for this study, the GHS asks detailed health-related questions in the health section.

There are other data sources that could have been utilised for the empirical analysis, including the Living Conditions Survey (LCS), the National Income Dynamics Survey (NIDS) and other health-related data sources like the Demographic and Health Survey (DHS). The LCS would have been ideal for this analysis since it is seriously underutilised and could provide an opportunity to verify cross-sectional findings in other datasets like the GHS and NIDS. However, for the two waves of the LCS dataset 2008/2009 and 2014/2015, the health-related questions are different which prohibits comparability<sup>5</sup>, hence this dataset was not employed. The DHS was not used because it was out-dated (only conducted in 1998) and the 2003 wave was not released to the public. The NIDS was not utilised since the health-related questions in this dataset do not ask questions related to patient satisfaction.

The GHS stands out from other household surveys since comprehensive health-related questions are asked. The questionnaire contains a range of questions related to the acceptability dimension of healthcare – essential for this study's objectives. The dependent variable capturing patient satisfaction is sourced from these health-related questions<sup>6</sup>. Respondents were asked how satisfied they were with the service they received during their last visit to a healthcare facility. Respondents were also asked the reason for bypassing their nearest healthcare facility.

Some of the health-related questions are asked to all individuals while others are asked to household heads only. For instance, one of the individual-level questions asked whether the individual has a medical aid or not, while the type of healthcare facility consulted when ill is asked to the household head only. The GHS questionnaire also includes questions that elicit socio-economic and demographics information<sup>7</sup>. This data will be used to derive explanatory variables.

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<sup>5</sup> For example, in the LCS 2008/2009 wave, respondents were asked why they did not consult the nearest health facility, their experience on the last visit and how satisfied they were with the service received. All these questions were not asked in the LCS 2014/2015 wave, which prohibits comparability.

<sup>6</sup> See Appendix B for the health section questions.

<sup>7</sup> The expenditure data for the analysed GHS years is captured in interval terms, with ten categories in total.

For this study, a pooled GHS 2009-2016 dataset was used for most of the analysis. The pooled dataset provides an opportunity for the researcher to analyse a much larger dataset, which improves robust estimation of the determinants of patient satisfaction. In addition, the pooled dataset enhances comparability, trend analysis and a holistic view of the changes of patient complaints and patient satisfaction over time. For some analysis, the focus was on only two time periods - GHS 2009 and GHS 2016- to clearly capture the change over time for patient satisfaction and patient complaints.

### **3.3 Limitations**

Some of the health-related questions in the GHS were asked differently over the years, while other questions were totally omitted in later GHS questionnaires. For example, the perceived health status question was only asked in 2013-2016 surveys. This made comparability between some GHS questions impossible. For all the individual and household level health questions in the health section of the GHS dataset, the answers do not constitute the doctor's professional opinion, the respondents provide the answers, and thus this is self-reported health information.

Even though self-reported information contains crucial detail regarding an individual's health, it is not without shortcomings. It is prone to reporting heterogeneity as a result of systematic differences in reporting behaviour across the various socio-economic groups and unobserved factors such as patient expectations, prior experience and cultural backgrounds (Rossouw, Bago D'Uva & Van Doorslaer, 2018). Hence, there are fallibilities and perception bias with self-reported information, as thoroughly explained in sections 2.2.3 and 2.3 above.

The framing of some of the questions in the GHS dataset may not have been clear to some respondents. For instance, the question regarding how satisfied the respondent was with the services received during a particular visit to a healthcare facility is not clear regarding which part of the visit the respondent is evaluating e.g. admin services, the consultation with a nurse or doctor or dispensation of drugs. This may lead to poor interpretations and vague responses from the respondents.

Another limitation of the analysis is that causal inferences cannot be made because the GHS dataset is cross-sectional in nature. Given the data and technique used in this study, the following main sources of endogeneity are noted (Greene, 2010; Wooldridge, 2010):

- Unobservable factors: Even though the models try to control for as many exogenous factors as possible, it is reasonable to assume that some unobservable factors remain and are omitted from the models. For example, patient satisfaction is influenced by personal preferences and individual expectations. These cannot be observed, hence they are omitted from the models. This is the most common source of endogeneity.
- Reverse causality: This is where  $Y$  can also have a causal effect on  $x$  in addition to  $x$  having a causal effect on  $Y$ . If this simultaneous relationship exists, identification will not be possible. In the present study, reverse causality is less plausible given the outcome variable and covariates, i.e. it is not plausible that patient satisfaction has a direct causal effect on socio-demographic factors such as gender. However, reverse causality may hold in a model controlling for individual expectations (if observable). In a case like that it is plausible that patient satisfaction may also have a causal effect on individual expectations.
- Measurement error: If one or more of the explanatory variables are measured with error it introduces bias into the regression coefficients. Expenditure, and income, in particular, may be measured with error in the GHS. This is overcome by using a non-monetary metric measure to capture SES (described in section 3.4.3).

Sample selection bias must be considered if the regression sample is non-randomly selected from the population or non-representative. Even though the GHS is a nationally representative sample, some filter questions may result in selection bias (e.g. certain survey questions were only asked if respondents sought care during the last 30 days). This will limit the extent of inferences that can be drawn from the results, since it may only be applicable to the relevant sub-samples that answered the filter questions.

### **3.4 Methodology**

#### **3.4.1 Uni- and bivariate analyses**

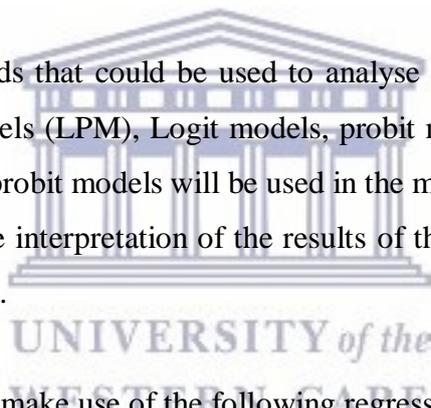
The main objective of the descriptive statistics is to present useful insights through description. The descriptive statistics will depict, organise, tabulate, and describe the outcomes and analyse the correlations between the variables of interest, making it easy to understand the data. The analysis will provide the knowledge base that could be used as the foundation for multivariate analysis.

Uni-variate and bivariate analysis will be conducted to describe a basic relationship between patient satisfaction and other explanatory variables such as marital status, gender, educational attainment level and race. This analysis is also conducted to describe the relationship between complaints and other relevant explanatory variables. This will allow comparability between satisfaction and complaints.

### 3.4.2 Econometric model

This study first conducts a binary regression to estimate the relationship between variables of interest. The purpose of the binary regression is to find the probability that an event occurs<sup>8</sup>. The simplest form of these probability models is when the dependent variable,  $Y$ , is a dummy variable. The assumption is that individuals are faced with a choice of a yes or no response denoted by one and zero respectively. Therefore, a binary dependent variable model is required for the empirical analysis.

There are a number of methods that could be used to analyse a binary response regression, namely linear probability models (LPM), Logit models, probit models and Tobit models. For this study, various LPMs and probit models will be used in the multivariate analysis. The LPM model provides better intuitive interpretation of the results of the analysis when compared to probit models (Gujarati, 2003).



The analysis of this study will make use of the following regression model (equation 1):

$$P(y = 1|x) = \beta_0 + \beta_1x_1 + \beta_2x_x + \dots + \beta_kx_k + U_i \dots \dots \dots (1)$$

This is where  $P(y = 1|x)$  can be interpreted as the conditional probability that an event will occur given  $X_i$  (Wooldridge, 2010).  $X_i$  is a vector of all the independent variables related to the patient, including SES, gender, and race. The probability  $P_i$  must lie between zero and one. Therefore,  $X_i$  is a function of underlying explanatory variables which may have an impact and change the interpretation.

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<sup>8</sup> Qualitative response regression models are mostly used in the research field of social science and health (Gujarati, 2003).

The LPM is not without shortcomings. The assumption of normality is arguable for LPMs. The reason for this is that  $U_i$  similar to  $Y_i$  only takes two values. The variance of the error term for the LPM model is heteroscedastic. Another shortcoming of the LPM is that there is a chance that  $Y_i$  could lie outside the range of zero and one (Greene, 2000). To tackle these shortcomings, a researcher must use a dataset with a large sample size when applying LPM, as is the case in this study. With a larger sample size, the statistical inference of the LPM will follow the OLS procedure under the normality assumption (Wooldridge, 2010).

Patient satisfaction at a public healthcare facility is recorded in the GHS dataset in categories. The LPM analysis will be conducted using a generated binary variable, which collapses the four categories of patient satisfaction i.e. very dissatisfied, dissatisfied, satisfied and very satisfied. In light of that, the model that is deemed more appropriate to deal with ordered categorical variables like patient satisfaction is the ordered probit model (OPM) (Jones, 2007). Therefore, we also conduct an OPM as a robustness model to analyse the relationship between patient satisfaction and other independent variables.

### 3.4.3 Description of variables and sample of interest

The outcome variable for this study captures *patient satisfaction with the quality of services* during their recent last visit at a public healthcare facility. This variable was collected by asking respondents how satisfied they were with the service received during their last visit to a healthcare facility. The respondents were given categorical options of very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied and very dissatisfied. This dependent variable,  $Y$ , is captured as a binary variable in the analysis. A dummy variable was created for the dependent variable patient satisfaction by collapsing the patient satisfaction category. The dummy variable equals zero if the patient satisfaction category answer is dissatisfied or very dissatisfied; the dummy variable equals one if the patient satisfaction category answer is satisfied or very satisfied.

Users of public healthcare facilities complained about a number of factors that are grouped in the following categories in the GHS:

- Facilities not clean
- Long waiting time
- Inconvenient opening time

- Too expensive
- Needed drugs not available
- Rude/uncaring staff or patient turned away
- Incorrect diagnosis
- Not on medical aid scheme list of the facilities
- Prefer to use a state/provincial health institution
- Prefer to use a private health institution

These complaints grouped in the categories above were analysed with other explanatory variables. The complaints were collected through a specific question in the GHS dataset. Particularly, respondents were asked why the nearest healthcare facility was bypassed and the aforementioned complaints categories were provided as options to choose from. In this study, this question is used as an indicator of acceptability of healthcare services. If any of the complaints in the categories provided was selected as the reason for bypassing the nearest healthcare facility that was treated as an indicator of low acceptability of healthcare services in the bypassed healthcare facility.

The following independent variables are used in the multivariate analysis: South Africa has nine different provinces – which perform differently in terms of health outcomes; a *province* control variable is included in the analysis. We expect that patients in some provinces would be more satisfied with public healthcare services than in other provinces (Burger & Swanepoel, 2006). A *rural* dummy variable was created with variable of dwelling type from the dataset, since we anticipate that urban dwellers will be less satisfied with public healthcare services compared to rural dwellers. *Employment status* and *marital status* are dichotomous variables, while *education level* is a continuous variable in the dataset as respondents are asked their education attainment level. In this study, three educational categories were created (Less than matric, Matric and More than matric) for the analysis. Therefore, the employment status dummy variable, marital status dummy variable and the categorical educational variable were included in the analysis. We anticipated that employed and educated individuals may have higher expectations which may lead to lower satisfaction levels with the services they receive (Christian, 2014).

A *socio-economic status index (SES)*<sup>9</sup> is constructed to capture the SES of the public healthcare. The index is based on the seminal work of Filmer and Pritchett (1998), which advocates the use of non-monetary metric measures of SES in the absence of accurate income or expenditure data. Principal Component Analysis (PCA) is used to create the SES index. An affluent dummy variable was created for the independent variable SES quintile variable, with one representing SES quintile five, and zero representing quintiles one to four. The choice of using the affluent dummy was made as a result of the relatively flat socio-economic slope with SES quintile five being the exception in South Africa. Most empirical studies in education and health also support the existence of the flat socio-economic slope (Van der Berg & Louw, 2006; Ataguba, Akazili & McIntyre, 2011). The flat socio-economic slope was also visible in the bivariate analysis of the study, thus for the multivariate analysis the affluent dummy was used.

For the gender variable, a dichotomous variable for *male* was created. The gender dummy variable is included in the analysis because we expected gender dynamics when reporting satisfaction with healthcare services. A dichotomous variable for *African* was created using the question which population group from the dataset where categorical options are provided. The African dummy variable is included in the analysis because we anticipated that Africans may have lower satisfaction levels compared to other race groups (Christian, 2014). *Age* and the generated *age squared* continuous variables are also included in the analysis. Age squared is included to control for non-linearity effects. We expect older patients to report higher levels of satisfaction when compared to younger patients (Burger & Christian, 2018).

Only household members who consulted at public healthcare facilities when ill were considered for the empirical analysis. This means that selection bias is introduced because random selection is not entirely employed in this sample analysis. Consequently, the results obtained from this analysis cannot be generalized to households who did not consult public healthcare facilities when ill. The forthcoming empirical findings will be attained using the person or household weight variables, depending whether the variable being analysed is at person or household level.

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<sup>9</sup> For the detailed description of variables included in the SES index and the rationale, see Appendix A.

#### 3.4.4 Ethics

Ethical approval is not necessary for this study because ethical standards will not be compromised: the data used is freely available to the public from Stats SA.

### **3.5 Conclusion**

The methodology chapter has outlined the research design for the empirical analysis of the study. Details of the dataset used were explained; the reasons for choosing this particular dataset and the limitations of the dataset were also discussed. The econometric model used for the empirical analysis, i.e. LPMs and the variables of interest were described. Thus, this chapter lays the foundation for the empirical analysis chapter, which follows.



## CHAPTER FOUR: EMPIRICAL FINDINGS

### 4.1 Introduction

This chapter presents a detailed explanation of the empirical analysis with the objective of describing the levels and trends of patient satisfaction with public healthcare services in South Africa and identifying factors that may predict patient perceptions. The chapter begins with descriptive statistics, which includes the cross-tabulation of patient satisfaction and complaints of patients who bypassed their nearest healthcare facility with various covariates. The descriptive statistics is followed by the results of the multivariate analysis. The chapter includes the results of the LPM only, while the results of the OPM can be found in Appendix C. This is because the results of the LPM and OPM were similar. The LPM is selected to be in the main analysis as it provides better intuitive interpretation as discussed in the methodology section. The final section concludes the chapter.

### 4.2 Descriptive statistics

Table 4.1 below present the summary statistics of the variables of interest for the empirical analysis. In the weighted sample, the average household size is four while the average age is 50 years. In terms of education attainment level, 77 per cent of the sample belongs to the less than matric category, 18 per cent Matric category and four per cent with more than Matric. The African population group accounted for the greatest share of the sample 89 per cent while, the Indians accounted for the least share in the sample 0.8 per cent. The coloured and white population groups also had the smallest share of the sample at eight per cent and one per cent respectively. With regard to the province variable, the provinces that were dominant in the sample include KwaZulu-Natal 17 per cent, Gauteng 16 per cent and Eastern Cape 14 per cent. Considering the geo-type of the sample, 83 per cent reside in rural areas while, 46 per cent reside in urban areas. In term of gender, 59 per cent are female in the weighted sample.

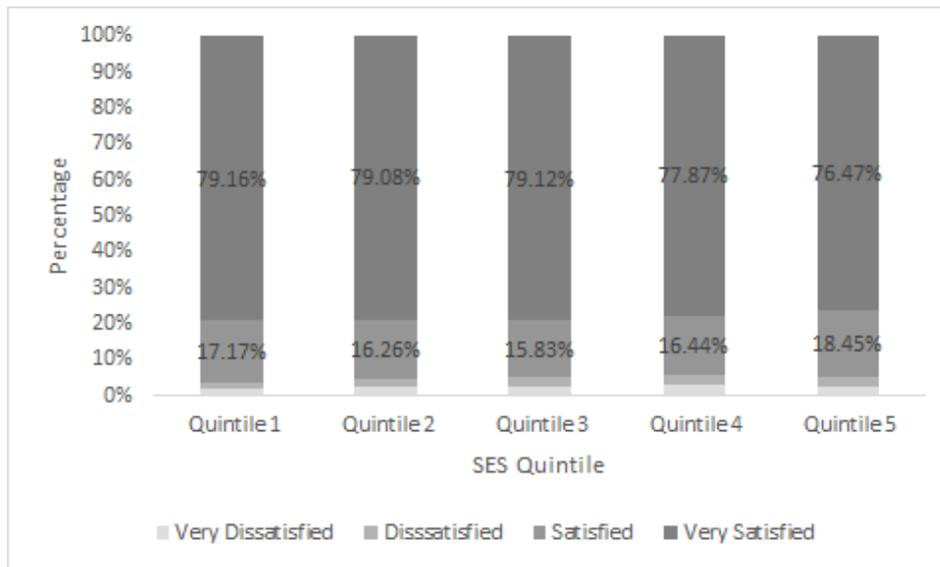
Table 4.1: Summary statistics of variables of interest

VARIABLES	N	mean	sd	min	max
Household size	50 852	4.265	2.685	1	28
Satisfaction	50 852	0.954	0.209	0	1
Western Cape	50 852	0.078	0.269	0	1
Eastern Cape	50 852	0.144	0.351	0	1
Northern Cape	50 852	0.056	0.230	0	1
Free State	50 852	0.073	0.260	0	1
KwaZulu-Natal	50 852	0.170	0.376	0	1
Gauteng	50 852	0.167	0.373	0	1
Mpumalanga	50 852	0.097	0.295	0	1
Limpopo	50 852	0.133	0.339	0	1
year2009	50 852	0.282	0.450	0	1
year2010	50 852	0.284	0.451	0	1
year2011	50 852	0.279	0.448	0	1
year2012	50 852	0.276	0.447	0	1
year2013	50 852	0.279	0.449	0	1
year2014	50 852	0.274	0.446	0	1
year2015	50 852	0.255	0.436	0	1
year2016	50 852	0.252	0.434	0	1
Rural	49 491	0.535	0.499	0	1
Urban	49 491	0.465	0.499	0	1
Less than matric	50 573	0.777	0.416	0	1
Matric	50 573	0.180	0.384	0	1
More than matric	50 573	0.043	0.202	0	1
Male	50 838	0.407	0.491	0	1
Female	50 838	0.593	0.491	0	1
Black	50 838	0.896	0.305	0	1
Coloured	50 838	0.085	0.279	0	1
Indian	50 838	0.008	0.091	0	1
White	50 838	0.010	0.102	0	1
Employed	50 838	0.423	0.494	0	1
Married	50 838	0.509	0.500	0	1
Unmarried	50 838	0.491	0.500	0	1
Age	50 852	50.440	16.470	2	110
SESquintile1	48 641	0.207	0.405	0	1
SESquintile2	48 641	0.257	0.437	0	1
SESquintile3	48 641	0.277	0.447	0	1
SESquintile4	48 641	0.114	0.318	0	1
SESquintile5	48 641	0.145	0.352	0	1

#### 4.2.1 Patient satisfaction

Figure 4.1 takes a close look at patient satisfaction at last public healthcare facility visit by SES quintile using pooled GHS data. Respondents across the SES quintiles were highly satisfied (76.47 per cent to 79.16 per cent) with the public healthcare services they received.

Figure 4.1: Patient satisfaction by SES quintiles



Source: Own calculations using pooled GHS 2009-2016 data

The proportion of patient satisfaction in the above Figure 4.1 shows similar distribution across SES quintiles. The majority of respondents from all SES quintiles had high satisfaction levels, with close to 80 per cent of the respondents reporting being very satisfied while only less than three per cent of respondents reported being very dissatisfied.

Below Table 4.2 presents patient satisfaction at last public healthcare facility visit across SES quintiles between 2009 and 2016, which captures changes in the socio-economic gradient of patient satisfaction over time. The very dissatisfied and dissatisfied categories are relatively low compared to other patient satisfaction categories. On the other hand, the very satisfied category is relatively high, followed by the satisfied category. Most importantly, the proportion of very satisfied respondents increased between 2009 and 2016 across all SES quintiles. In conclusion, the overall satisfaction level of patients over time has increased.

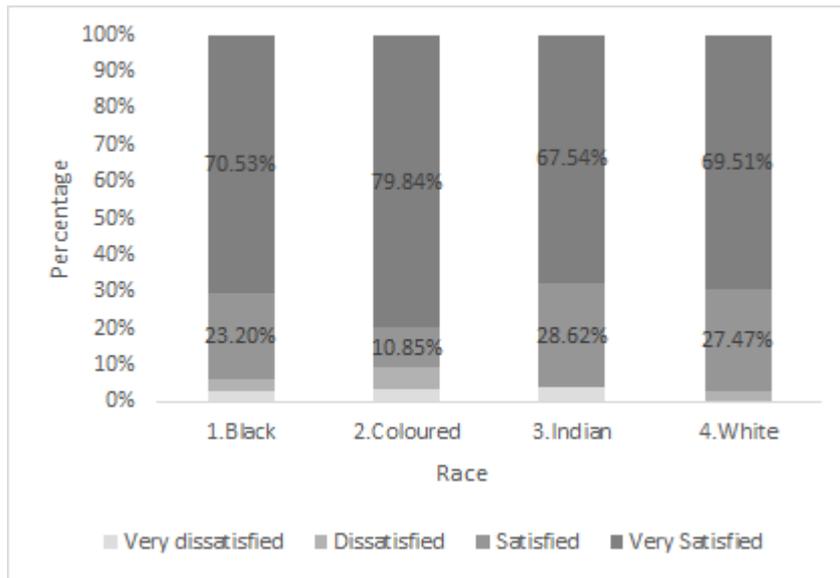
Table 4.2: Patient satisfaction across SES quintiles between 2009 & 2016

Quintile	Very dissatisfied		Dissatisfied		Satisfied		Very satisfied	
	2009	2016	2009	2016	2009	2016	2009	2016
1	4.46%	1.67%	4.60%	2.20%	34.62%	19.33%	56.33%	76.81%
2	8.09%	2.09%	4.58%	2.57%	30.50%	17.73%	56.83%	77.61%
3	5.50%	2.58%	8.81%	3.07%	30.26%	18.34%	55.43%	76.01%
4	9.87%	2.88%	2.17%	3.50%	25.25%	17.13%	62.71%	76.49%
5	3.24%	2.21%	3.13%	3.35%	26.9% <sup>1</sup>	18.29%	66.72%	76.16%

Source: Own calculations using GHS 2009&2016 data

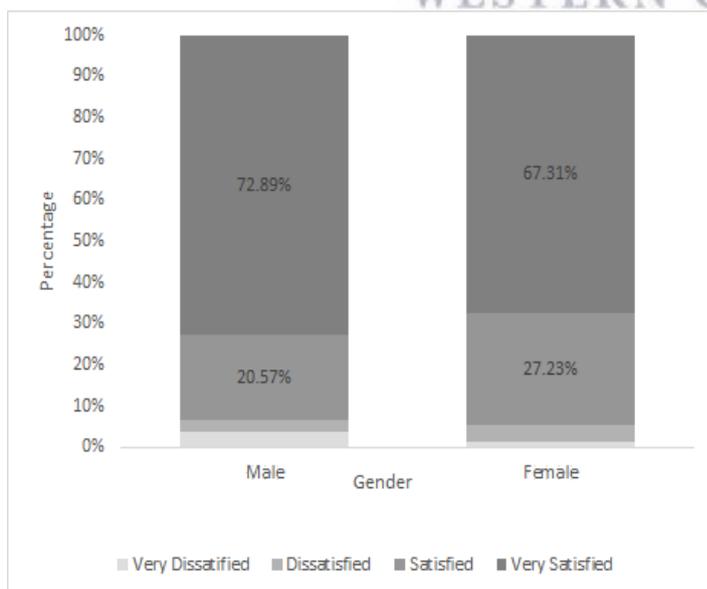
Figure 4.2 below illustrates patient satisfaction at last public healthcare facility visit by race using pooled GHS data. The results reveal that the Coloured population group had the highest proportion of very satisfied patients (79.84 per cent), followed by the African population group (70.53 per cent), whereas this share was the lowest in the White and Indian population group (69.51 per cent and 67.54 per cent respectively).

Figure 4.2: Patient satisfaction by race



Source: Own calculations using pooled GHS 2009-2016 data

Figure 4.3: Patient satisfaction by gender

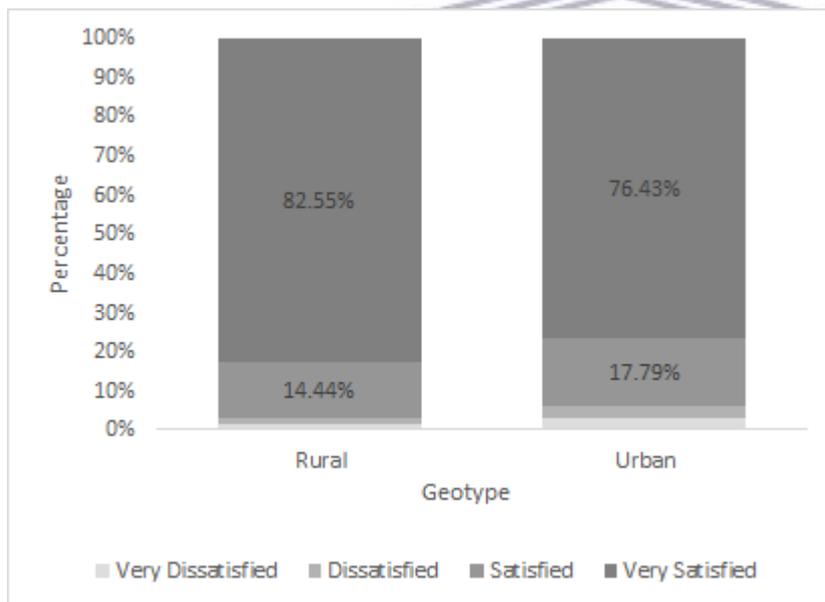


Source: Own calculations using pooled GHS 2009-2016 data

Figure 4.3 shows patient satisfaction at last public healthcare facility visit by gender. The results reveal that overall, female respondents were less satisfied with the public healthcare service they received. Particularly the female respondents had the lowest satisfaction levels, with 67.31 per cent of respondents reporting being very satisfied while male respondents had the highest satisfaction levels with 72.89 per cent of respondents reporting being very satisfied.

Figure 4.4 below examines patient satisfaction at last public healthcare facility visit by geo-type. According to the results depicted in the figure below, rural dwellers were highly satisfied with the public healthcare services received compared to urban dwelling respondents. The rural dwellers had the highest satisfaction levels, with 82.55 per cent respondents reporting being very satisfied, whereas 76.43 per cent of urban dwelling respondents reported being very satisfied.

Figure 4.4: Patient satisfaction by geo-type

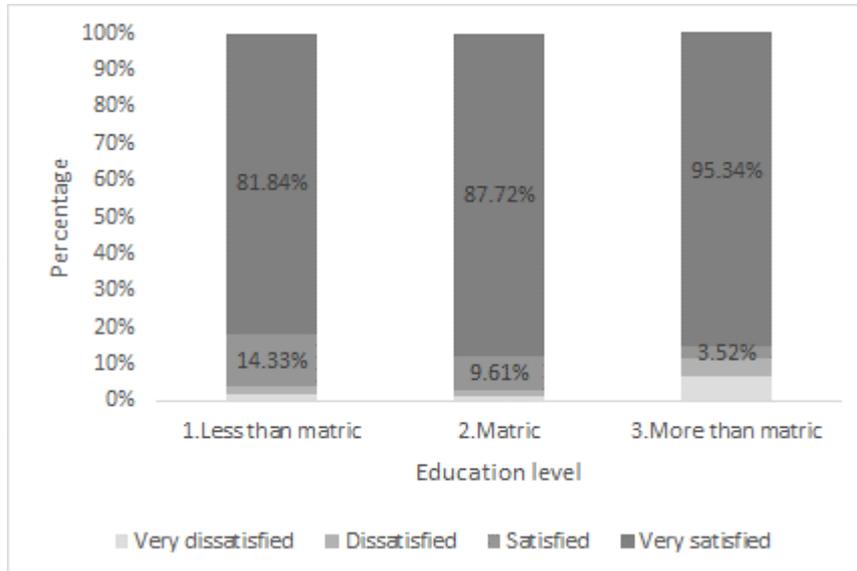


Source: Own calculations using pooled GHS 2009-2016 data

Figure 4.5 depicts patient satisfaction at last public healthcare facility visit by educational attainment level. For the period under review, on average, highly educated individuals (with post-matric qualifications) had the highest proportion of very satisfied respondents (95.34 per cent), followed by moderately educated individuals (matric), with 87.72 per cent of respondents reporting to be very satisfied. On the other hand, less educated individuals (less than matric) had the lowest proportion of very satisfied respondents (81.84 per cent). In contrast, both the

very dissatisfied and dissatisfied categories were relatively low categories when compared to the other categories for all the education attainment categories.

Figure 4.5: Patient satisfaction by education level



Source: Own calculations using pooled GHS 2009-2016 data

Table 4.3 below presents patient satisfaction at last public healthcare facility visit by employment status. According to the results presented in the table, generally, employed and unemployed respondents have similar satisfaction level with the public healthcare services they received. Both employed and unemployed respondents have a high proportion that reported to be very satisfied (71.07 per cent and 70.28 per cent respectively).

Table 4.3: Patient satisfaction by employment status

Employment status	Satisfaction			
	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
Unemployed	1.95%	5.59%	22.18%	70.28%
Employed	3.12%	2.40%	23.41%	71.07%

Source: Own calculations using pooled GHS 2009-2016 data

#### 4.2.2 Complaints

Table 4.4 below shows the top five complaints of patients who bypassed their nearest health facility by SES quintile. Based on the analysis, a small variance exists across the SES quintiles. The complaint with the highest share for SES quintile one, four and five was that patients

preferred to use state/provincial health institutions relative to public healthcare clinics, while for SES quintile two and three long waiting time at public healthcare facilities had the highest share. The complaint with the lowest share for SES quintile one and two was facility not clean and incorrect diagnosis, while for SES quintile three and four incorrect diagnosis had the lowest share. On the other hand, the complaint with the lowest share for SES quintile five was not being on the medical aid scheme list of the facilities.

Table 4.4: Complaints by SES quintiles

Complaints	SES Quintile				
	Q1	Q2	Q3	Q4	Q5
Prefer to use state/provincial health institution	45.83%	25.25%	22.71%	26.52%	40.65%
Long waiting time	24.90%	32.90%	26.91%	24.04%	20.22%
Needed drugs not available	12.65%	21.20%	20.98%	18.20%	11.48%
Rude/uncaring staff	7.24%	12.58%	15.45%	3.06%	7.64%
Too expensive	3.95%	1.49%	1.28%	6.96%	8.51%

Source: Own calculations using pooled GHS 2009-2016 data

Table 4.5 below illustrates a comparison of the top five complaints for bypassing the nearest health facility across SES quintile between 2009 and 2016, which captures the socio-economic gradient of complaint changes over time. Considering the analysis, the overall trend of complaints has decreased over time.

Table 4.5: Complaints across SES quintiles between 2009 and 2016

Complaints	Year	SES Quintile				
		Q1	Q2	Q3	Q4	Q5
Long waiting time	2009	16.93%	9.24%	38.70%	5.52%	25.70%
	2016	31.03%	34.98%	33.41%	22.29%	34.92%
Prefer to use state/provincial health	2009	6.69%	47.20%	2.76%	38.01%	6.75%
	2016	39.96%	19.21%	11.62%	36.24%	16.80%
Needed drugs not available	2009	5.11%	23.21%	15.51%	39.21%	9.10%
	2016	8.47%	20.74%	19.35%	32.20%	22.75%
Rude/uncaring staff	2009	0.00%	17.69%	9.13%	0.00%	0.83%
	2016	15.13%	25.06%	27.99%	0.00%	4.90%
Inconvenient opening time	2009	2.27%	0.00%	0.00%	8.43%	0.00%
	2016	0.00%	0.00%	5.69%	6.94%	8.04%

Source: Own calculations using GHS 2009 & 2016 data

Table 4.5 also shows that the most common complaints between 2009 and 2016 for bypassing the nearest health facility were long waiting times (38.70. per cent in 2009; 34.98 per cent in 2016), and preferring to use state/provincial health institutions relative to public healthcare

clinics with relatively high proportions for all the SES quintiles. Furthermore, for all the SES quintiles the complaint mentioned least often was about incorrect diagnosis and facility not clean with a proportion of less than six per cent for both years.

Table 4.6 below presents the top five complaints of patients who bypassed their nearest health facility by race. For the Black population, the frequent complaint with a relatively moderate proportion was that they prefer to use a state/provincial health institution relative to public health clinics, followed by a long waiting time. For the Coloured population the frequent complaint with a relatively moderate proportion were long waiting times, followed by rude or uncaring staff.

Table 4.6: Complaints by race

Complaints	Race			
	Black	Coloured	Indian	White
Prefer to use state/provincial health institution	35.23%	17.80%	67.54%	43.73%
Long waiting time	25.11%	30.52%	25.88%	4.75%
Needed drugs not available	17.12%	6.66%	3.84%	5.45%
Rude/uncaring staff	9.25%	21.27%	0.00%	0.00%
Too expensive	5.12%	2.86%	0.00%	17.39%

Source: Own calculations using pooled GHS 2009-2016 data

For the Indian population the frequent complaint with relatively high proportion was that they prefer to use a state/provincial health institution, followed by a long waiting time, which is similar to the Black population's pattern of complaints. For the White population the frequent complaint with a relatively moderate proportion was that they prefer to use a state/provincial health institution followed by the facilities being too expensive. In contrast, the White population least complains about rude/uncaring staff, inconvenient opening time, facilities not clean and incorrect diagnosis with the relatively low proportion of zero per cent.

Table 4.7 below presents complaints of patients who bypassed their nearest health facility by gender. The results revealed that overall male and female respondents have a similar pattern of complaints regarding public healthcare services they received. Particularly the most common complaint for both genders was that they prefer to use state/provincial health institutions with 34.47 per cent for male respondents compared to 37.81 per cent for the female respondents, with the least complaint being incorrect diagnosis for both genders with 0.5 per cent for the male respondents compared to 0 per cent for the female respondents.

Table 4.7: Complaints by gender

<b>Complaints</b>	<b>Gender</b>	
	Male	Female
Prefer to use state/provincial health institution	34.47%	37.81%
Long waiting time	23.64%	24.64%
Needed drugs not available	15.23%	16.11%
Rude/uncaring staff	7.90%	10.84%
Too expensive	7.90%	2.02%

Source: Own calculations using pooled GHS 2009-2016 data

Table 4.8 takes a closer look at complaints of patients who bypassed their nearest health facility by geo-type. The findings indicate that the frequent complaint with a relatively moderate proportion (38.38 per cent) for rural dwellers was that they prefer to use state/provincial health institutions, followed by long waiting time (23.08 per cent). Urban dwellers frequently complained with relatively moderate proportions (32.61 per cent) about long waiting time, followed by needed drugs not available (24.32 per cent). The least complaint reported for the rural dwelling respondents was incorrect diagnosis, while for urban dwellers it was facility not clean, incorrect diagnosis and preferring to use private health institutions.

Table 4.8: Complaints by geo-type

<b>Complaints</b>	<b>Geo-type</b>	
	Urban	Rural
Long waiting time	32.61%	23.08%
Needed drugs not available	24.32%	13.14%
Prefer to use state/provincial health institution	23.39%	38.38%
Rude/uncaring staff	10.74%	9.54%
Inconvenient opening time	5.45%	2.79%

Source: Own calculations using pooled GHS 2009-2016 data

In Table 4.9 below complaints of patients who bypassed their nearest health facility can be seen by education attainment level. For all the educational attainment levels the frequent complaint was that they prefer to use state/provincial health institutions, followed by a long waiting time with a relatively moderate proportion. The least complaint for the individuals with less than matric was that the facility was not clean, while individuals with matric and individuals with more than matric least complained about incorrect diagnosis with a proportion of less than one per cent.

Table 4.9: Complaints by education level

<b>Complaints</b>	<b>Education level</b>		
	Less than matric	Matric	More than matric
Prefer to use state/provincial health institution	34.11%	38.96%	36.96%
Long waiting time	25.72%	19.00%	26.57%
Needed drugs not available	17.07%	12.78%	10.67%
Rude/uncaring staff	10.34%	7.10%	5.88%
Too expensive	4.72%	9.26%	2.77%

Source: Own calculations using pooled GHS 2009-2016 data

Table 4.10 below presents complaints of patients who bypassed their nearest health facility by employment status. The analysis reveal that overall, unemployed and employed respondents have a similar pattern of complaints regarding public healthcare services they received. Particularly, the most common complaint for both unemployed and employed respondents was that they prefer to use state/provincial health institutions with 29.13 per cent for unemployed respondents compared to 38.66 per cent for employed respondents. On the other hand, the complaint found least often with a relatively low proportion of less than one per cent was incorrect diagnosis and facilities not clean for both employment statuses.

Table 4.10: Complaints by employment status

<b>Complaints</b>	<b>Employment status</b>	
	Unemployed	Employed
Prefer to use state/provincial health institution	29.13%	38.66%
Long waiting time	26.13%	23.06%
Needed drugs not available	21.25%	13.00%
Rude/uncaring staff	9.55%	8.73%
Prefer to use private health institution	7.08%	2.72%

Source: Own calculations using pooled GHS 2009-2016 data

### 4.3 Econometric analysis

This section estimates the determinants of patient satisfaction using regression analysis. Table 4.11 presents the output from a Linear Probability Model. For a variable to be statistically significant we consider the P-values  $p < 0.01$ ,  $p < 0.05$ , and  $p < 0.01$ . On the other hand, for a variable to be economically significant we consider the magnitude and the sign of the estimated coefficient. For instance, if the coefficient is relatively small the variable is regarded as economically insignificant while if the coefficient is relatively large the variable is regarded as economically significant. Amongst the determinants employment status, being a white individual amongst the races as well as male individuals are positive and statistically

significant. Similarly, household size, geo-type, all provinces but Free State and age are statistically and economically significant.

Table 4.11: Linear Probability Model for Patient Satisfaction

<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>
Affluent	0.003	0.004
Employed	0.006**	0.003
Coloured	-0.009	0.006
Indian	0.008	0.009
White	0.019**	0.009
Male	0.008***	0.003
Matric	-0.000	0.003
More than matric	-0.006	0.006
Married	-0.002	0.003
Age	0.001*	0.000
Age squared	-0.000	0.000
Household size	-0.001**	0.000
Rural	0.012***	0.003
Eastern Cape	0.045***	0.006
Northern Cape	0.026***	0.007
Free State	0.009	0.007
KwaZulu-Natal	0.041***	0.006
North West	-0.008	0.007
Gauteng	0.024***	0.006
Mpumalanga	0.039***	0.006
Limpopo	0.042***	0.006
Constant	0.806***	0.012
Observations	47 471	
R-squared	0.033	

Robust standard errors in parentheses

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

Reference groups: Gender: Female, Race: African, Education level: Less than matric, Geo-type: Urban, Province: Western Cape & Controlled for Year effects

Considering the employment status variable, the probability of patient satisfaction with public healthcare services increases by 0.6 per cent amongst the employed relative to the unemployed. The employment dummy variable is statistically significant (at p<0.05), but not economically

important as the coefficient is relatively low. Therefore, an employed household head is more likely to report to be satisfied with healthcare services received at public healthcare facilities when compared to an unemployed household head.

For South African population groups, the Black race group was used as the reference category. In terms of economic significance, the probability of patient satisfaction with public healthcare services is 1.9 per cent higher for the White race group relative to the Black race group ( $p < 0.05$ ). On the other hand, the findings for both the Coloured and Indian race groups are statistically insignificant. The probability of reporting satisfaction with public healthcare services is 0.9 per cent less for the Coloured race group relative to the Black race group, while the probability of reporting satisfaction with public healthcare services is 0.8 per cent higher for the Indian race group relative to the Black race group.

The probability of patient satisfaction with public healthcare services is 0.8 per cent higher for males relative to females (at  $p < 0.05$ ). This means that males are significantly more likely to report satisfaction with healthcare services received at a public healthcare facility. The probability of patient satisfaction with public healthcare services increases by 0.1 per cent as age increases by one additional year (at  $p < 0.1$ ). This implies that as individuals grow older, they are slightly more likely to report satisfaction with healthcare services.

The probability of patient satisfaction with public healthcare services is 0.1 per cent lower for larger household size, relative to smaller household size (at  $p < 0.05$ ). Therefore, this entails that a larger household is more likely than a smaller household, on average, to be least satisfied with healthcare service received at a public healthcare facility.

The rural dummy variable is economically and statistically significant (at  $p < 0.1$ ). The probability of reporting patient satisfaction with public healthcare services is 1.2 per cent higher for rural residents relative to urban residents. Thus rural residents are moderately more likely to report satisfaction with public healthcare services received at a public healthcare facility relative to urban residents.

Considering the province variable, the Western Cape is used as the reference province. Findings for the Free State and North West are statistically insignificant, while the Eastern Cape, Northern Cape, KwaZulu-Natal, Gauteng, Mpumalanga and Limpopo are economically

and statistically significant (at  $p < 0.05$ ). The probability of reporting patient satisfaction with public healthcare services is (2.4 per cent to 4.5 per cent) higher for individuals in Gauteng, the Northern Cape, Mpumalanga, KwaZulu-Natal, Limpopo and the Eastern Cape respectively, relative to individuals in the Western Cape. Therefore, this indicates that individuals from other provinces are slightly more likely to report satisfaction with public healthcare services received at a public healthcare facility relative to individuals from the Western Cape.

The affluent dummy variable, marital status, age squared and the educational attainment level variable are economically and statistically insignificant. The probability of reporting satisfaction with public healthcare services is 0.3 per cent higher for the affluent relative to the non-affluent, while the probability of reporting satisfaction with public healthcare services is 0.2 per cent lower for married individuals. The probability of reporting satisfaction with public healthcare services is 0.6 per cent lower for educated individuals relative to uneducated individuals.

The LPM outcomes of patient satisfaction are similar to those obtained by the OPM (see Table D1 in Appendix C). The same explanatory variables are statistically significant; despite the computation differences between the models. The variables include employment status, race, household size, geo-type, province and year. An addition of the OPM are the cut-off points regarded as the threshold parameters. A Latent variable that is less than -0.949 corresponds to a very dissatisfied patient, a value between -0.949 and -0.580 corresponds to a dissatisfied patient, a value between -0.580 and 0.377 corresponds to a satisfied patient and a value above 0.377 corresponds to a very satisfied patient.

#### **4.4 Conclusion**

This chapter described the levels and trends of patient satisfaction with public healthcare services in South Africa and identified factors that may predict patient perceptions. Section 4.2 focused on descriptive statistics which included the cross-tabulation of patient satisfaction and complaints of patients who bypassed their nearest public healthcare facilities with other covariates. The results of the patient satisfaction trend analysis revealed that over time patient satisfaction has increased. In terms of complaints, the trend of complaints over time has decreased. The most common complaint among different demographic factors is long waiting time at public healthcare facilities.

Furthermore, Section 4.3 investigated patient satisfaction using the LPM and OPM regression models. Both these regression models revealed similar results, hence the LPM is interpreted in the analysis while the OPM is found in appendix C table C1. A male household head on average is more likely to be satisfied with healthcare services received at public healthcare facilities compared to the female household head. On average White individuals, individuals residing in rural areas and individuals with small household size were more likely to report to be satisfied with healthcare service received at public healthcare facilities. The results reported on in this chapter will be interpreted in the discussion chapter below.



## CHAPTER FIVE: DISCUSSION

### 5.1 Introduction

This chapter discusses the empirical findings on patient perceptions of the quality of public healthcare – presented in Chapter Four – and considers its implications in the South African context. The discussion will highlight trends of patient satisfaction and factors that may influence patient perception of the quality of public healthcare services in South Africa by socio-economic status (SES), gender, geo-type, educational level and employment status from 2009 to 2016. This will help the reader to clearly understand what drives health-seeking behaviour and eventually health outcomes.

### 5.2 Discussion

#### 5.2.1 Patient satisfaction

Descriptive results revealed that respondents across all the SES quintiles were highly satisfied (76.47 per cent to 79.16 per cent). These findings are in line with the existing findings in the literature, which indicate that patients are highly satisfied with public healthcare services across all the SES quintiles (Myburgh et al., 2005; Christian, 2014). Interpreting these findings at face value may lead to an incomplete conclusion: that there are no major challenges in the public healthcare sector since patients are highly satisfied with the healthcare services received. This study refrains from drawing that conclusion since there may be other factors that explain why patients report high satisfaction levels. Examples of these factors include fallibility of self-reported information, positivity bias and information failure. These factors that may explain why patients report high satisfaction levels are discussed in more detail in section 2.3.2 and section 2.3.3 which deals with satisfaction as a measuring tool for quality of healthcare.

When considering the correlation between patient satisfaction with race and gender respectively. The results show that the Coloured population group had the highest proportion of very satisfied patients (79.84 per cent). On the other hand, female respondents had the lowest satisfaction levels, with 67.31 per cent of respondents reporting being very satisfied while male respondents had the highest satisfaction levels with 72.89 per cent of respondents reporting being very satisfied. Therefore, these findings are in line with the literature concerning patient satisfaction correlation with race and gender respectively (Christian, 2014; Burger & Christian, 2018). These findings could be explained by different expectation levels that exist within different population groups and different genders. In terms of gender, these results could be

reflecting the lack of knowledge about what constitute satisfying healthcare service by males, which leads them to report high satisfaction levels.

Considering patient satisfaction correlation with geo-type, the results reveal that rural dwellers had the highest satisfaction levels, with 82.55 per cent of respondents reporting being very satisfied, whereas 76.43 per cent of urban dwelling respondents reported being very satisfied. Thus, the findings support the existing literature regarding the correlation between patient satisfaction and geo-type (Burger & Christian, 2018). These results may indicate that it is easier to please patients from rural dwelling compared to patients from urban dwellings as a result of lack of information about the standards of patient treatment by provides set by the department of health.

It is important to note that the interpretation of the descriptive results of patient satisfaction correlated with various demographic factors is not clear as there are many confounding factors (some of which are controlled for in the multivariate models). The descriptive results show high patient satisfaction for all SES quintiles, Blacks, and males while the opposite is true for urban dwellers, educated and employed individuals. These results reveal that extensive further investigation is required before conclusions can be drawn. This is because the results may be indicative of unobserved factors such as different patient expectations, prior experiences and cultural backgrounds that may influence the perceptions of patients. Hence, the unobserved factors were highlighted as the shortcomings of self-reported information in the limitations section 3.3 above.

Nevertheless, patient satisfaction is used as an indicator in evaluating healthcare service quality (Batbaatar, Dorjdagva, Luvsannyam, Savino, & Amenta, 2017). Patient satisfaction influences the health-seeking behaviour of patients. For example, high patient satisfaction with public healthcare services would encourage patients to frequently visit public healthcare facilities when confronted by healthcare challenges. In addition, patients would easily adhere to healthcare provides treatment and follow-up appointments which would eventually improve health outcomes and perceived quality of healthcare services.

### 5.2.3 Correlates of patient satisfaction

The multivariate analyses for both the LPM and the OPM<sup>10</sup> revealed that employed individuals, Whites, males, rural dwellers and small household size are positively correlated with patient satisfaction. This implies that Whites, males, rural dwellers, small household size and employed individuals are significantly more likely to report to be more satisfied with healthcare services received at public healthcare facilities. These findings are in line with the South African literature on the acceptability dimension of access to healthcare (Christian, 2014; Hasumi & Jacobsen, 2014; Smith, 2016; Burger & Christian, 2018). The positive correlation between patient satisfaction and the aforementioned correlates could be reflective of a number of things such as different expectation levels, different experiences which influence perception, and positivity bias. For example, white individuals may be treated differently compared to other population groups in South Africa by healthcare providers as a result of embedded cultural perceptions.

The findings of the multivariate analysis of patient satisfaction must be interpreted with caution. This is because of the problems associated with patient satisfaction as a measure of quality of healthcare. Patient satisfaction is prone to perception bias, courtesy bias and it is also a weaker indicator of clinical quality (Dunsch et al., 2018). In many instances ordinary patients are not well informed with regards to what constitute quality healthcare service, hence they cannot assess the quality of healthcare service delivered adequately. To address the weaknesses of the patient satisfaction survey approach, this approach should be used in conjunction with other healthcare quality measures such as direct observations, standardised or mystery patients<sup>11</sup> and vignettes.

Patient satisfaction is an important component in healthcare because it influences health-seeking behaviour of patients and eventually, health outcomes. Therefore, it is a necessary condition for improved health outcomes but it is not a sufficient condition. To increase satisfaction of public healthcare users the health reform policy should focus on improving patient and healthcare worker interaction. This may be done through educating or training healthcare workers in patient communication skills. The health reform policy should also aim at reducing waiting times in public healthcare facilities. This could be achieved by effectively

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<sup>10</sup> See Appendix C.

<sup>11</sup> Highly trained evaluators that come across as any other patient visiting a healthcare facility.

implementing the appointment system or increasing the number of operating hours for primary healthcare facilities. Furthermore, the health policy reform should encourage maintenance of healthcare facilities and equipment to be done regularly, with monitoring systems in place. Therefore, well deserved attention to the aforementioned healthcare challenges would positively influence patient satisfaction with public healthcare and eventually improve the acceptability of public healthcare services.

### 5.2.2 Complaints

The empirical analysis of complaints presented in Section 4.2.2 above, revealed that public healthcare sector users complain about a number of factors. The frequently cited reason for bypassing the nearest public healthcare facility was long waiting time, followed by patients indicating that they prefer to use state/provincial health institutions. The empirical findings support the current literature in terms of the complaining pattern of public healthcare sector users (Burger & Swanepoel, 2006; Burger, 2007; Burger et al., 2016).

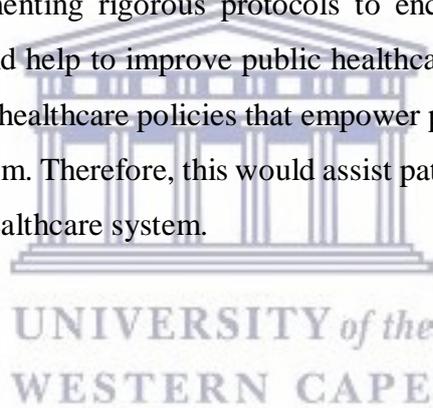
Furthermore, the long waiting time complaint highlights the overcrowding problem at public healthcare facilities. This constitutes a major challenge for the public healthcare sector against the backdrop of medical staff shortages and an overburdened public healthcare sector (Daniels, 2015; Smith, 2016). Thus, there is a need for policy to address this challenge through interventions that may strengthen the leadership and governance of these facilities and shorten waiting time. An example of an intervention would be; the better roll-out of the appointment system in public healthcare facilities; the operating hours of public primary healthcare facilities should also be considered with the aim of reducing overcrowding in this sector.

In addition, when contrasting the findings of patient satisfaction and the complaints pattern findings, it is depicted that a number of patient's report being highly satisfied while concurrently complaining about a number of factors such as unclean facilities, long waiting time, and drugs not available. It is important to note that the complaints are indicative of low acceptability of the public healthcare service received. Thus, patient satisfaction findings and the complaints pattern of patients are contradicting. Burger et al. (2016), using anchoring vignettes, provide similar results and argue that the contradiction stems from perception bias. Patients, particularly those with low socio-economics status, have limited knowledge to what constitutes high quality healthcare that could enable them to provide a better self-evaluation of health. Burger and Christian (2018) seek to reduce the influence of perception bias through

incorporating intersubjectivity, using primary sampling units (PSU) for the acceptability analysis. Hence, complaints could be more objective and reliable relative to the subjective patient satisfaction surveys. Therefore, government should empower patients through policies that would ensure patient centred public healthcare system and implement quality improvement programmes.

### **5.3 Conclusion**

The South African government must endeavour initiatives to improve the quality of healthcare delivered at public healthcare facilities. This should be done by introducing quality improvement programmes. Introducing such initiatives would enhance the performance of public healthcare facilities, patient perceptions, health-seeking behaviour and eventually health outcomes. Another important component in improving the performance of public healthcare facilities is strengthening the leadership and governance of these facilities. This should be done by building capacity, implementing rigorous protocols to encourage the accountability of healthcare workers. This would help to improve public healthcare workers' morale. Lastly, it is crucial to implement public healthcare policies that empower patients i.e. promote a patient-centred public healthcare system. Therefore, this would assist patients to play an active role for the betterment of the public healthcare system.



## CHAPTER SIX: CONCLUSION

### 6.1 Introduction

Since the democratic transition in South Africa in 1994, the democratic government assumed a great burden of poverty, disparity and underdevelopment. At the core of this burden were various developmental challenges such as inadequate healthcare provision, poor infrastructure, unemployment and lack of education. Therefore, healthcare reform has formed part of the priorities of government, as quality healthcare is a basic human right in South Africa.

Access to healthcare is a complex concept with three dimensions: affordability, availability and acceptability. Comprehensive research has been conducted on the affordability and availability dimensions. According to the empirical literature, the general conclusion is that affordability and availability do not act as barriers to accessing healthcare. On the other hand, the acceptability dimension is under-researched; this may be because of the lack of a dataset that asks consistent, detailed questions related to the acceptability dimension. Hence, this study focuses on the neglected acceptability dimension of access to healthcare.

The purpose of this study was to understand the determinants of patient satisfaction with public healthcare in South Africa. Since poor-quality public healthcare – perceived or real – poses a major challenge for the South African government, researchers and policy makers aim to find ways of improving health outcomes (Smith, 2016).

### 6.2 Review of findings

The human capital theory provides a theoretical explanation of the importance of investing in health. Where patient satisfaction influences patient's decisions regarding health investment. The need to invest in health leads to the demand for healthcare. Grossman's model of health demand provided a framework to explain the decisions people make regarding their health. The demand for healthcare is influenced by acceptability, a component of access to healthcare. The acceptability dimension of access is a proxy for perceived quality of care, feeding directly into health outcomes. When patients perceive the quality of care received at a public healthcare facility as acceptable, the demand for healthcare at that facility will increase. Thus, this directly and positively influences the health-seeking behaviour of individuals, which may improve health outcomes.

It is crucial to note that patient satisfaction is a complex concept since it is subjective and easily influenced by personal preferences and patient expectations. The descriptive statistics, which involved the cross-tabulation of patient satisfaction and complaints of patients who bypassed their nearest public healthcare facilities with other covariates, revealed that over time, an increasing proportion of individuals was satisfied with public healthcare services, while over time, a decreasing proportion of individuals complained about public healthcare services. On average, individuals across all SES quintiles, Blacks, males, individuals residing in rural areas, unemployed and less educated, were significantly more likely to be highly satisfied with the healthcare service received at a public healthcare facility. These findings supported the existing literature regarding the correlation between patient satisfaction and the above-mentioned covariates. Previous studies also alluded to the fact that users of public healthcare facilities in household surveys indicated high levels of satisfaction with healthcare service received (Burger et al., 2016; Burger & Christian, 2018).

Furthermore, these results indicate that individuals residing in rural areas, unemployed and less educated report high levels of satisfaction with public healthcare services. Looking at the analysis, it is impossible to tell if these individuals are treated differently compared to their counterparts. It could be argued that these individuals report high satisfaction levels with public healthcare service as a result of lower expectations, previous experiences leading to being accustomed to bad service, lack of patient empowered, and lack of knowledge of patient treatment standards. Thus, there are a number of confounding factors that the analysis of patient satisfaction cannot explain.

Patient complaints could be used to identify areas that require more attention and improvement in the healthcare system; they also constitute as important determinants of the perceived quality of service at public healthcare facilities. The most common complaint among different demographic factors is that patients prefer to use state/provincial health institutions, needed drugs not available, and also long waiting time at public healthcare facilities. The complaints pattern of the South African public healthcare users is similar to that of the other countries in BRICS as reviewed in section 2.3. These results are puzzling since users of public healthcare facilities reported to be very satisfied with the public healthcare services received, yet the analysis also reveals that they complain about various factors. Thus, careful consideration of the underlying factors and the implication of these results are required before conclusions could be drawn regarding the quality of public healthcare services.

Moreover, these results may provide evidence to help government improve service delivery in the public health sector. For instance, the complaint of needed drugs being unavailable in public healthcare facilities is a challenge that could be avoided. This could be accomplished by putting systems in place where drug inventory would be recorded effectively and frequently monitored.

Turning to the multivariate analysis, the LPM and ordered probit regression model show similar results. The results revealed that on average males, Whites, individuals residing in rural areas and individuals with small household size were more likely to report to be satisfied with healthcare service received at public healthcare facility compared to their counterparts. The results of both regression models<sup>12</sup> indicate that there may be underlying perception biases originating from different race groups, cultural differences, socio-economic background and gender.

### **6.3 Conclusion**

The South African healthcare system still experiences challenges with perceptions about the quality of healthcare service delivered at public healthcare facilities, even though a number of healthcare reforms have been implemented. Healthcare reform policies such as the NDP and the NHI place great emphasis on improving the quality of healthcare in South Africa. This is because quality healthcare is viewed as an important factor that influences the health-seeking behaviour of an individual, and eventually also health outcomes. Thus, the democratic government is committed to strengthening the South African healthcare system by providing quality healthcare for all citizens through the NHI. Therefore, government needs to measure the current gap between standards and the actual practice in healthcare in order to find better ways of addressing the healthcare quality challenge in the NHI policy-making process.

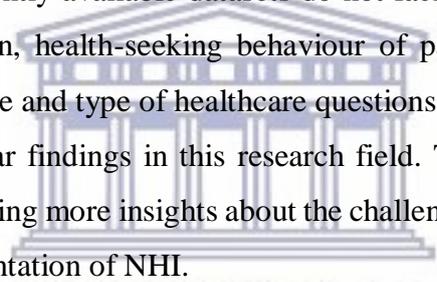
Focusing on patient satisfaction and patient complaints about a public healthcare facility they visited, may not be enough to make conclusive decisions about policies to enhance the improvement of the South African healthcare system. This is because patient satisfaction levels and patient complaints show conflicting results that may be indicative of underlying perception biases embedded in socio-economic status, gender and cultural backgrounds. More research that includes other approaches of measuring the quality of healthcare is required to understand

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<sup>12</sup> See appendix C for results of the ordered probit model.

the acceptability dimension of healthcare, whether actual or self-reported. Particularly, a combination of approaches such as direct observations, vignettes and standardised or mystery standardised patients would better inform the debate about the quality of healthcare.

It is also important to empower users of public healthcare services through educating them about the treatment standards they should expect from providers and supporting staff members. It is crucial to have visible information in public healthcare facilities of procedures to follow when those governmental set standards for providers have been compromised. This would encourage patient participation and ultimately positively influence health-seeking behaviour. Government should provide patient communication skills training and workshops to improve public healthcare workers' attitudes towards patients and also implement appointment systems to reduce waiting time. Lastly, the lack of a large dataset with more detailed questions on the acceptability dimension of healthcare in household surveys is a limiting factor in terms of healthcare research. The currently available datasets do not facilitate a deeper understanding of the acceptability dimension, health-seeking behaviour of patients and eventually health outcomes. Improving the scope and type of healthcare questions asked (in household surveys) would allow for more granular findings in this research field. This would benefit the South African government by providing more insights about the challenges faced in public healthcare as it prepares for the implementation of NHI.



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## Appendix A: Explanation of the PCA methodology

Vyas and Kumaranayake (2006) explain that PCA is a multivariate statistical technique utilised to decrease the number of variables in a data set into a lesser number of dimensions. The PCA methodology decreases the number of variables through putting them into components known as the principal components where variation in the data is maximal (Vyas & Kumaranayake, 2006). It functions well when the asset variables are correlated and when the distribution of variables varies across households.

According to Vyas and Kumaranayake (2006), PCA constructs uncorrelated indices, in which each component is a linear weighted combination of the initial variables. The weights for each principal component are given by the eigenvectors of the correlation matrix, or if the original data were standardized, the covariance matrix. The eigenvalue ratios show the amount of the total variance that each of the principal components describes (Van der Berg, Nieftagodien & Burger, 2003). It is used to decide on the number of components to be included in the asset index. When the assets are more unequally distributed between households they are given more weight in the PCA index, while variables with low standard deviations would carry a low weight in the PCA index (Vyas & Kumaranayake, 2006). The statistical equation for PCA construction is as follows:

$$P_1 = \sum_{i=1}^n a_{1i} X_{1i}$$

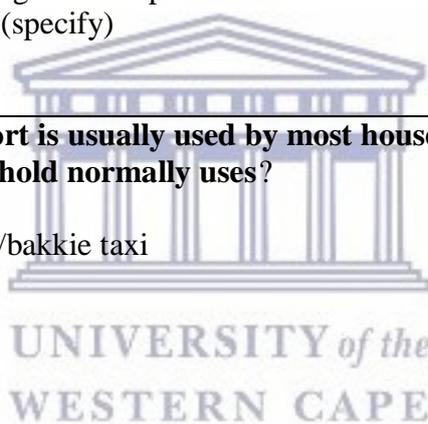
In the equation above each data point can be represented by a linear combination of the basis vectors. The coefficients  $a_{1i}$  will be different for the different data points.

To construct the SES index, the following asset ownership variables were included: landline, cell phone. The asset ownership variables were combined with household characteristics such as access to water, sanitation type and dwelling type. Therefore, the constructed SES index will be utilised to disaggregate the population into quintiles for the socio-economic gradient analysis.

## Appendix B: GHS 2016 health questions on patient satisfaction

Table B.1: GHS 2016 health questions on patient satisfaction

<p><b>7.1 If any member of this household becomes ill and decides to seek medical help, where do they usually go first?</b></p> <p><b>Public sector</b> (i.e. government, provincial or community institution)</p> <ul style="list-style-type: none"> <li>01 = Hospital</li> <li>02 = Clinic</li> <li>03 = Other in public sector</li> </ul> <p><b>Private sector</b> (including private clinics, surgery, private hospital and sangomas)</p> <ul style="list-style-type: none"> <li>04 = Hospital</li> <li>05 = Clinic</li> <li>06 = Private doctor/specialist</li> <li>07 = Traditional healer</li> <li>08 = Spiritual healer's workplace/church</li> <li>09 = Pharmacy/chemist</li> <li>10 = Health facility provided by employer</li> <li>11 = Alternative medicine, e.g. homoeopathist</li> <li>12 = Other in private sector (specify)</li> <li>13 = Do not know</li> </ul>
<p><b>7.2a What means of transport is usually used by most household members to get to the health facility the household normally uses?</b></p> <ul style="list-style-type: none"> <li>1 = Walking</li> <li>2 = Minibus taxi/sedan taxi/bakkie taxi</li> <li>3 = Bus</li> <li>4 = Train</li> <li>5 = Own transport</li> <li>6 = Bicycle/motorcycle</li> <li>7 = Other (specify)</li> </ul>
<p><b>7.2b How long does it take when using the usual means of transport to get to the health institution that your household normally goes to? Specify for one direction only, using the usual means of transport</b></p> <ul style="list-style-type: none"> <li>1 = Less than 15 minutes</li> <li>2 = 15-29 minutes</li> <li>3 = 30-89 minutes</li> <li>4 = 90 minutes and more</li> <li>5 = Do not know</li> </ul>
<p><b>7.3a Is this facility the nearest of its kind (clinic/hospital/health centre etc.) to your dwelling?</b></p> <ul style="list-style-type: none"> <li>1 = Yes?</li> <li>2 = No?</li> </ul> <p>7.3b Answer if "No" in 7.3a</p> <p><b>If not the nearest, why is the household normally not using the nearest facility?</b></p> <ul style="list-style-type: none"> <li>01 = Facilities not clean</li> <li>02 = Long waiting time</li> </ul>



- 03 = Opening times not convenient
- 04 = Too expensive
- 05 = Drugs that were needed, not available
- 06 = Staff rude or uncaring or turned patient away
- 07 = Incorrect diagnosis
- 08 = Not on medical aid scheme list of facilities
- 09 = Prefer to use a State/Provincial health institution
- 10 = Prefer to use a private health institution
- 11 = Other (specify)

**7.4 When was your (the respondent's) last visit to the health facility normally used by the household?**

- 1 = During the past twelve months
- 2 = More than twelve months ago?
- 3 = I have never been there

**7.5 How satisfied were you (the respondent) with the service you received during this particular visit?**

- 1 = Very satisfied
- 2 = Somewhat satisfied
- 3 = Neither satisfied nor dissatisfied
- 4 = Somewhat dissatisfied
- 5 = Very dissatisfied

**Appendix C: Ordered probit model for patient satisfaction**

The OPM is an extension of the binary regression model which examines multinomial outcomes, expressed in terms of the underlying latent variable  $Y$  (Jones, 2007). The model is designed to analyse a discrete dependent variable, where natural ordering for the categories exists. Respondents report to a particular category, where the ratings submitted by the respondents vary based on the strength of the underlying preferences (Greene, 2010). The preferences are influenced by the different set of characteristics of individuals that feed into their utility function, such as socio-economic background, age, level of education and gender.

The cut-off constants of the OPM are regarded as threshold parameters. The parameters are a crucial part of the model, since they divide the range of utility into cells that are then placed with the observed outcomes (Greene, 2010). In this study the threshold parameters coincide with the cut-off points, where respondents move from one category of self-reported health satisfaction to another.

Table C.1: Ordered probit model for patient satisfaction

<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>
Affluent	0.030	0.023
Employed	0.074***	0.017
Coloured	0.097***	0.035
Indian	-0.078	0.076
White	0.135*	0.074
Male	0.015	0.018
Matric	0.008	0.021
More than matric	0.015	0.039
Married	0.020	0.018
Age	0.002	0.003
Age squared	0.000	0.000
Household size	0.005	0.003
Rural	0.094***	0.019
Eastern Cape	0.236***	0.036
Northern Cape	0.181***	0.041
Free State	0.123***	0.035
KwaZulu-Natal	0.134***	0.041
North West	-0.096**	0.039
Gauteng	0.091***	0.035
Mpumalanga	0.246***	0.039
Limpopo	0.572***	0.043
Constant cut1	-1.566***	0.079
Constant cut2	-1.208***	0.078
Constant cut3	-0.278***	0.077
Observations	47 471	

Robust standard errors in parentheses

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

Reference groups: Gender: Female, Race: African, Education level: Less than matric, Geo-type: Urban, Province: Western Cape & Controlled for Year effects