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MASTER'S THESIS

**THE PERCEIVED QUALITY OF HEALTHCARE SERVICES AND  
PATIENT SATISFACTION IN SOUTH AFRICAN PUBLIC  
HOSPITALS**

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Ljubljana, May 2014

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## INTRODUCTION

The state of the South African healthcare system is currently under a large amount of strain (Hugo & Loubser, 2005; WHO, 2013a). This can be greatly attributed to the burden of diseases such as HIV/AIDS, Tuberculosis and other non-communicable diseases as well as the high rate of injury and violence, maternal, infant and child mortality and the shortage of ground staff and inadequate equipment. This has led to the consensus that transformational change to healthcare delivery is imperative (DoH, 2012; NDoH, 2010).

Traditionally the technical knowledge of healthcare professionals have been considered sufficient in ensuring quality treatment. Ruiz and Simon (2004) argue that in modern times healthcare facilities have become more complex systems where medical care requires administrative and managerial support to better respond to the preferences and values of their patients. The need to satisfy patients' needs go beyond obtaining an institutional competitive advantage. Globally it has been accepted that improved health status of a country has significant impacts on socio-economic and political stability (Kaseje, 2006).

The importance of healthcare as a Human Development Indicator has been recognized by the South African government and is evident in the many health reforms scheduled to be implemented. Service delivery and quality are both set at high priority as part of strategies to alleviate the current health burden the country faces. The institution of a Ten-Point plan to improve health outcomes (NDoH, 2010) and the establishment of the National Core Standards are indicators that governmental departments are set on following through and delivering on strategies (NDoH, 2010). The Millennium Development Goals as set out by the United Nations has provided further incentive to meet healthcare objectives (UNDP, 2013).

Although efforts have been made to improve the quality of services and resources, health indicators and perception ratings indicate that more work is required. Private healthcare facilities are more frequently being preferred to public facilities and health indicators are improving at a slower than desired rate or not at all (Coovadia, Barron, Jewkes, & McIntyre, 2009; SSA, 2013a).

Service quality continues to be a difficult concept to quantify and assess due to its intangible nature. Thus defining quality has become a complex task. Majority of literature has agreed that service quality best be described as a disconfirmation paradigm where expectations are either met, not achieved or surpassed (Brown & Swartz, 1989; Parasuraman, Berry, & Zeithaml, 1994). In addition to this definition, understanding the constituents of quality has also been extensively researched.

Initial research, which forms the foundation of many studies in quality, considers a systems-based approach to understanding quality. Three systems namely, Structure (physical and staff characteristics), Process (clinical care and staff characteristics) and Outcome (health status and staff characteristics), describes the framework for assessing

care (Donabedian, 1980). The seminal work by Parasuraman, Berry & Zeithaml (1985) derives its findings from assessing factors within the Process system. Their research was based on the multidimensionality of service quality, which has since become an accepted precept in service quality literature.

Parasuraman et al. (1985) also describes a framework describing the Service Quality Gap Model. This model identifies five gaps of prevalent imperfect information in patient-healthcare provider interactions. The most important gap has been identified as Gap 5 which pertains to the expected versus perceived quality of service delivery from the healthcare provider to the patient. Within this framework, the use of a measurement tool, called the SERVQUAL questionnaire, is implemented (Parasuraman, Berry & Zeithaml, 1988). The SERVQUAL tool enables researchers to identify, not only the gaps in perceptions and expectations in services quality from patients, but also identify which factors (or dimensions) underlie the quality construct.

Although the SERVQUAL tool has undergone criticism, it has continue to be widely used as a reliable and valid tool for service quality assessment. Parasuraman, Berry and Zeithaml (1991) identified five dimensions which underlie service quality. These dimensions (Tangibles, Reliability, Responsiveness, Assurance and Empathy) have been used in subsequent studies as theoretical fact (Taner & Antony, 2006) . However, due to criticism of the validity of transposing these dimensions to different populations (Buttle, 1994), other researchers have preferred to determine underlying factors/dimensions for their own study samples (Infante, Beilby, Bubner, Davies, Harris, Holton, & Proudfoot, 2004; Sofaer & Gruman, 2003; Taner & Antony, 2006). While these studies have shown some overlapping dimensions, it remains important to identify unique components and combinations distinct to populations.

Service quality has shown to have a close relationship with patient satisfaction. Quality of service has been indicated in a number of studies to be an antecedent to satisfaction (Cronin & Taylor, 1992; Fornell, Byrant, Cha, & Johnson, 1996). As this relationship becomes more evident and important in recent years, research has been focused on determine the strength of this relationship (Smith & Engelbrecht, 2001; Choi, Chankon, Hanjoon, & Lee, 2005). Understanding the antecedents of satisfaction is not only important is maintaining a competitive advantage, but studies have shown that improved service satisfaction relates to improved treatment adherence and attendance of follow-up consultations (Fan, Burman, Fihn, & McDonnell, 2005; Fornell et al., 1996).

The strategies to improve the South African healthcare system is still based predominantly on tangible performance measures with minimal input from patient perceptions which are superficially assessed in national census surveys (DoH, 2013a; DoH, 2013b). Limited research has been conducted on quality perceptions and its link to satisfaction in South African public healthcare. The research presented in thesis aims to contribute to this literature to better understand the perceptions of patients and thus provide a foundation for effective strategy development and implementation.



In order to meet the needs expressed above this thesis will aim to research questions pertaining to the expectations and perceptions of the public healthcare system, whether there are differences between these opinions and whether they are deemed significant enough to comment on. This study will also explore the relationship between service quality and patient satisfaction and determine which quality dimensions have the most influential impact on satisfaction ratings.

The measurement tool used to gather information was a combination of the aforementioned SERVQUAL questionnaire as well as demographic questions and a question pertaining to perceived satisfaction. The questionnaire was comprised of mostly Likert-scale questions (1-7) and other closed questions. The questionnaire was distributed through Ika.si website via email and Facebook as well as by hard copy to reach parts of the population who do not have access to the internet.

The questionnaire was assessed through SPSS where reliability testing and hypothesis testing was conducted. An exploratory factor analysis was also conducted (thereby confirming validity) to determine the underlying factors of the studied sample upon which all statistical analysis was based. A regression analysis was run to ascertain the emergent dimensions' effect on the reported satisfaction rating.

This thesis is comprised of four chapters. The first chapter, the Literature Review, provides the rationale for the study. It describes the current situation of South African healthcare as well as key concepts and literature in the main themes of the research namely, service quality and patient satisfaction. Methodology, chapter 2, defines the research design in detail and also presents the hypotheses to be tested in this study.

Chapter three, titled Results, will provide the results of the data collected through the questionnaires. This section will include an analysis of the population, assessment of information gathered and test results for the tested hypotheses. The final chapter, the Discussion, will provide insight into the information presented in the Results chapter as well as limitations of the current research and recommendations.



# **1 LITERATURE REVIEW**

## **1.1 The South African Healthcare System**

Almost 20 years after its first democratic elections, the South African healthcare system is still experiencing the legacy of inequalities of the oppressive Apartheid regime. Inequalities in infrastructure and resources are at the core of the healthcare problems in South Africa (Kaseje, 2006). Ranking second in the world on income distribution, the availability of public healthcare resources reflects a similar poor and unsatisfactory statistic. The quality of service delivery in the healthcare sector is an important focus of the White Paper on the Transformation of Public Services (RSA, 1995). This document is guided by the *Batho Pele* (meaning ‘People First’ in the Sotho language) principle which implies that patients should be at the center of healthcare services.

Globally, healthcare has been recognized as the cornerstone of human development. This is largely due to its impact on population productivity, educational performance as well as its positive impact on social and political stability and its link to greater equity and economic return (Kaseje, 2006). Therefore, improving the healthcare system is imperative for South African economic survival, stability and progress. With a Human Development Index of 0.629 and a ranking of 121 out of 186 measured countries in the world and the second largest GINI index (63.1), South Africa has room to grow and reach its full potential (Lehola, 2008; UNDP, 2013).

### **1.1.1 Organization of the Public Health Sector**

The South African healthcare system is organized in a three-tier manner; the National Department of Health (hereinafter: NDoH) which oversees national legislation and sets use fee schedule; the Provincial Department of Health (hereinafter: DoH) which holds operational decision-making authority including healthcare delivery and finance; and District authorities who have local control of public health services (McIntyre, Gilson, Soderlund, & Valentine, 1998).

The decentralized nature of the South African health system is so designed in order to allow customization of services and procedures to best fit the culture of that specific region (Connolly, 2002). These local governmental health departments provide preventative, supportive and rehabilitative primary healthcare services with an emphasis on communicable disease.

### **1.1.2 Current Health Status of the Republic of South Africa**

While South Africa is very much a developing country, incidence of first world health concerns, that is, diseases of lifestyle (dyslipidemia, hypertension and diabetes) are on the increase and are expected to continue to increase by 24% in the next decade (NDoH, 2012). Poor lifestyle habits such as tobacco smoking, high alcohol consumption, sedentary

lifestyle and poor diet are currently being addressed through legislative and regulatory measures.

On the other hand, health issues common to developing countries are prevailing. For instance, basic healthcare indicators such as maternal and infant deaths are still prevalent. While South Africa is on track with meeting the millennium development goals for child mortality, no significant progress has been seen in decreasing maternal mortality rates since 1990 (UNDP, 2013) with increased injuries due to violent crime also placing high demand on hospitals and health clinics (NDoH, 2012).

By far the greatest burden on South African healthcare is HIV/AIDS. South Africa has the highest prevalence of HIV/AIDS in the world, with 10% of the population infected (SSA, 2013b). Efforts to provide anti-retroviral (ARVs) drugs and treat patients with related illnesses such as Tuberculosis (73% of TB patients are HIV positive) and Pneumonia, as well as prevention campaigns require a great deal of resources (SSA, 2011).

Understandably, the South African healthcare system is currently under a large amount of strain (Hugo & Loubser, 2005; WHO, 2013a). Apart from structural resources and skilled workers (NDoH, 2012), South Africa is experiencing what has been described as a quadruple burden of disease consisting of (i) Non-communicable diseases (ii) high maternal and child mortality (iii) violence and injuries and (iv) HIV/AIDs and TB (Coovadia et al., 2009; NDoH, 2012).

This quadruple burden of disease has led to the increase in workload and stress for doctors, nursing and administrative staff which directly impacts the quality of care. The ease of access, availability and affordability of traditional and other informal, unregulated sources of care are still in use and in many cases compound the burden. The rapid rate of urbanization as the fact that the majority of South Africans (86%) utilize public healthcare facilities and as a result these institutions are placed under a lot of pressure by the healthcare demands of the population (NDoH, 2010; von Holdt & Murphy, 2006).

This is evident in the healthcare system indicators such as physician per 1000 population as well as the urbanization rates as indicated in Table 1 as compared to strategic regions. Second to India, South Africa has the lowest physician per 1000 population and is currently still below the world average. Urbanization rates are also higher than both world average and Sub-Saharan average (The World Bank Group, 2013).

Table 1. Health System Indicators and Urbanization Rates

	Physician*	Nurses*	Hospital beds*	Rate of urbanization
World average	1.40	2.90	4.80	0.86
Sub-Saharan Africa	0.20	0.80	1.20	0.98
Europe	3.60	5.40	0.31	5.70
<b>Republic of South Africa</b>	<b>0.80</b>	<b>4.10</b>	<b>2.80</b>	<b>1.21</b>
Brazil	1.80	6.40	2.30	1.10
Russia	4.30	8.50	9.70	0.13
India	0.60	1.00	2.47	0.90
China	1.80	1.70	3.80	2.85

Note: \*Rates for selected regions and BRICS countries.

\* per 1000 population

Source: The World Bank Group, *World Development Indicators*, Table 2.15.

A further manifestation of the struggling healthcare system can be found in the rapid increase in the number of service delivery protests in South Africa. Incidence has risen from 10 in 2004 to 111 in 2010 with a more than 300% increase from 2008-2009 alone. The locations of these protests are not evenly distributed across the country with the majority of them taking place in Johannesburg and Cape Town districts. Issues being protested are mostly related to structural issues (healthcare) and governance (Turok, 2010).

### 1.1.3 Policy to Improve Service Delivery and Quality

Acceptable service delivery remains a challenging task in all districts and is a major role player in alleviating the health burden in South Africa (DoH, 2013a). This challenge has been emphasized as a key strategic focus to achieve the Millennium Development Goals (WHO, 2008) set by the United Nations. Through its many recent policy and legislative mandates, the South African National Department of Health (hereinafter: NDoH) has further committed itself to its vision of ‘an accessible, caring and high quality health system’ (NDoH, 2010, p. 10). A ten-point plan was established to prioritize steps to ensure significantly improved health outcomes. Point three of the ten-point plan focuses on improving the quality of health services through National Health Insurance (hereinafter: NHI).

Programs designed to update health information systems through Information and Communication Technology (hereinafter: ICT) were among the proposed quality improvement plans which were to be implemented in 70% of all public sector facilities by 2013. Six key areas, including: patient safety; infection prevention and control; availability of medicines; waiting times and positive and caring attitudes will be the priority indicators upon which quality improvement will be based (NDoH, 2010).

Government has also identified four strategic outputs which the public health sector is to achieve. One of these outputs are to strengthen health system effectiveness in terms of a number of identified targets (DoPM, 2013). Among these targets is improving patient care and satisfaction which includes decreasing Waiting times, better physical infrastructure and cultivating positive opinions on public healthcare.

The National Core Standards was developed by the Office of Health Standards Compliance to provide a benchmark of quality care. According to a 2013 national audit of the South African Health Care Facilities, public health facilities scored less than 50% compliance on one third of the ministerial priority areas, namely, patient safety and security (34%) and caring attitudes (30%). Waiting times scored the highest compliance to vital measures at 68% (DoH, 2013b), indicating, even at the highest compliance rating, a lower than satisfactory state of healthcare.



Despite the efforts to improve overall quality in public hospitals, it seems that the poor quality perception among the general public is unchanged. There remains an affinity for middle- to upper-income households to utilize private healthcare facilities (WHO, 2008). Population perception of care remains an important dimension to consider. Perception of value has the ability to make cost of care irrelevant (Cronin & Taylor, 1994) and thus can explain the almost 8-fold discrepancy between expenditure in the private and public sector *per capita* (given the higher perceived quality of care of private over public healthcare) (NDoH, 2010).

Research has further confirmed that healthcare service delivery and service quality are areas in need of significant improvement in developing countries (Eggleston, Li, Lu, Quan, Wang, Yang, & Zhang, 2010; Jabnoun & Chaker, 2003; Taner & Antony, 2006; Wagstaff, Claeson, Fang, Gottret, & Mecht, 2006), in particular Sub-Saharan Africa (WHO, 2005). Zineldin (2006) indicates reasons for improving service quality in the developing world, emphasizing current patient dissatisfaction with high costs and poor quality, waste reduction and poor problem-solving frameworks as chief concerns.

## **1.2 Service Quality**

The concept of quality in organizations has been around for many years and is poised to continue to develop in meaning. From the early 1900's the meaning, analysis and application thereof has changed. From solely focusing on tangible measures such as product specifications (physical inspection and application of simple statistical methods) to possessing a broader meaning - encompassing all organizational processes. After the 1970s and 1980s organizations began to encounter increased foreign competition, and US-based companies, in particular, started to lose market share. It was in this period that quality began to have strategic meaning (Table 2) (Reid & Sanders, 2004).

Table 2. Evolution of the Concept of Quality

<b>TIME:</b>	<b>1900s</b>	<b>1940s</b>	<b>1960s</b>	<b>1980s and beyond</b>
<b>FOCUS:</b>	Inspection	Statistical sampling	Organizational quality focus	Customer driven quality
				
	<p>Old Concept of Quality: Inspect for quality after production</p>			<p>New Concept of Quality: Build quality into the process. Identify and correct causes of quality problems.</p>

Source: R. Reid & N. Sanders, *Operations Management*, 2004, p.143, Figure 5-3.

That is why, even though its origins can be traced to the 1940s, after the 1980s, Total Quality Management (TQM) only increased in popularity and became practiced in a number of western firms in the late 20<sup>th</sup> century. Total Quality Management refers to the ‘broad set of management and control processes designed to focus an entire organization and all of its employees on providing products or services that do the best possible job of satisfying the customer’ (Talha, 2004, p. 15).

Therefore, TQM can be described as customer-focused management and has shown to improve performance of a number of resources and divisions within organizations (Powell, 1995). This concept has provided the greatest impetus for quality control and management and has given rise to ISO 9000 which consists of a number of quality standards for both products and services (Talha, 2004). The persistent use and emphasis of quality (and indirectly satisfaction) across firms proves that service quality plays a considerable role in business, making it imperative to appropriately and correctly measure its effectiveness.

Due to this continuous evolution of the concept of quality, there is much debate regarding the definition of quality and how to quantify it in terms of services. Quality remains a complex and indistinct concept and literature proposes many definitions (Zineldin, 2006), many of which are both plausible and legitimate. Quality has often been defined as a perceived value attributed to an object or service. However, it is more frequently expressed in relative terms i.e. compared to a predetermined assumption of level of service (Campbell, Buetow, & Roland, 2000; Grönroos, 1984; Pui-Mun, Dhanjoo & Khong, 2006).

Quality of manufacturing organizations is often based on different criteria than that of service organizations. The tangible products produced in manufacturing firms are easier to measure than in service organizations where the product can very seldom be seen or touched. Quality performance measures for both types of organizations are presented in Table 3 where service quality is based on predominantly perceptual factors such as attitudes, timeliness and atmosphere. Manufacturing organizations assess their quality of

products on factors of performance, durability and other perceptible elements (Reid & Sanders, 2004).

Table 3. Criteria of Quality

<b>Manufacturing Organizations</b>	<b>Service Organizations</b>
Conformance to specification	Tangible factors
Performance	Consistency
Reliability	Responsiveness to customer needs
Features	Courtesy/friendliness
Durability	Timeliness/promptness
Serviceability	Atmosphere

Note: \*Differences between manufacturing and service organizations

Source: R. Reid & N. Sanders, *Operations Management*, 2004, p.139, Figure 5-1.

### 1.2.1 Definition of Service Quality

According to the published definitions, service quality seems to be a disconfirmation paradigm (Brown & Swartz, 1989; Parasuraman et al., 1994). That is, when compared to expectations, perceptions are either higher (negative disconfirmation), lower (positive disconfirmation) or equal (confirmation) (Parasuraman et al., 1985). Where expectations are understood as the desires of patients and what they feel the level of service should be from the provider, and perceptions pertain to the evaluated service.

The majority of service quality research studies refer to Parasurman et al.'s (1985) definition where, theoretical, quality is the gap between patient's expectation and perception of services rendered along the quality dimensions. Service quality definitions can be summed as 'the art of doing the right thing, at the right time, in the right way, for the right person- and having the best possible result (Zineldin, 2006).As will be elaborated on later in this paper, service quality is widely accepted to be based on multiple dimensions (Grönroos, 1984; Naidu, 2009; Parasuraman et al., 1985).

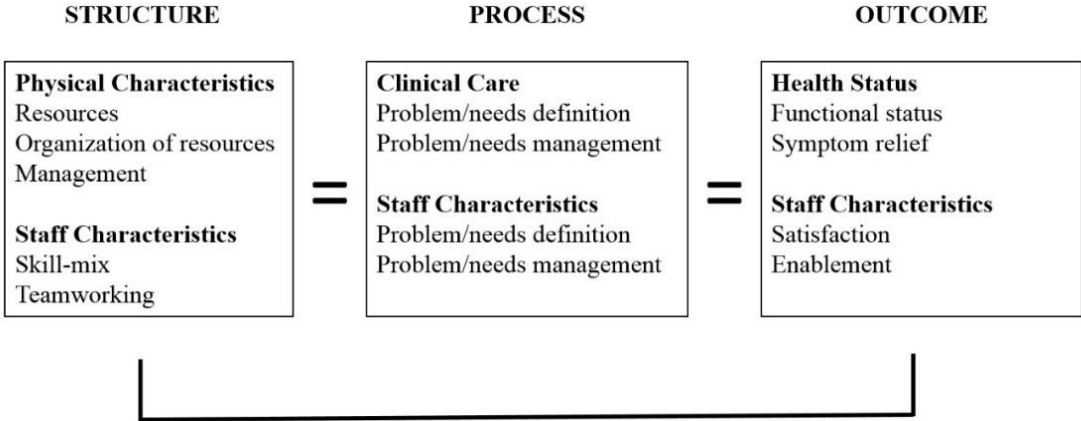
In literature it is has been widely accepted that quality is a multidimensional concept with many inter-related dimensions (Carmen, 2000; Choi et al., 2005; Cronin & Taylor, 1992). For many decades, the pursuit for most accurately determining these factors has led to numerous models and theories being developed. Most models fall in the parameters of Donabedian's (1988) work where quality is investigated as a concept which can be studied at many levels of care including: Care by healthcare providers (technical as well as interpersonal care); amenities; care implemented by patients and care received by the community.

The inferences made by these researchers have led to the widely accepted concept that service quality factors are broadly covered by categories of structure, process, and outcome (Donabedian, 1980). Although these categories are linked and not mutually exclusive, it is



important to acknowledge them as individually influential on perceived quality of service (Figure 1). When viewed in combination, these three components offer more specificity in defining quality.

Figure 1. A Systems Based Model for Assessing Care



Source: Campbell et al., *Defining Quality of Care*, 2000, p. 1613, Figure 1.

*Structure* refers to the effect tangible assets have on perceived quality of a service i.e. the attributes of the setting. Structural indicators represent the inputs or characteristics of the healthcare provided. This category includes physical resources (equipment and facilities), human resources (staff characteristics) and organizational structure (administrative processes, opening hours etc.) (Donabedian, 1988). Although improved structures improve the likelihood of increased service quality, they remain indirect and contingent influences on care (Campbell et al., 2000).

*Process* refers to the interaction between the user/patient and the healthcare structure. This includes the patients’ activities in seeking care and the healthcare providers’ interaction with the user. This interaction is often divided into two key processes namely; technical interventions and interpersonal interactions. In essence, technical (or clinical) intervention or care is the application of clinical medicine or bio-medical care to address an ailment and is evaluated on well-established measures of efficacy (Campbell et al., 2000).

Interpersonal interaction or care is best described as the management of the social and psychological interaction between client and practitioner (Donabedian, 1980). Process measures have been deemed the better of the three categories for purposes of changing and influencing the behavior of the healthcare system since it is under the control of healthcare professionals and can thus be altered rapidly (Campbell et al., 2000).

*Outcomes* are usually expressed as technical outputs. These are the effects of care (Donabedian, 1988). In healthcare, outcomes are assessed as improved health status.

However, this parameter can extend to patients increased knowledge, empowerment and behavioral changes.

Within this framework, two prevailing perspectives on understanding the concept of quality are the 'Nordic' perspective and the 'American' or 'Gap' perspective. The critical difference between the two is that the 'Nordic' perspective defines service quality using broad categorical terms, while the 'American' perspective uses terms which are more descriptive.

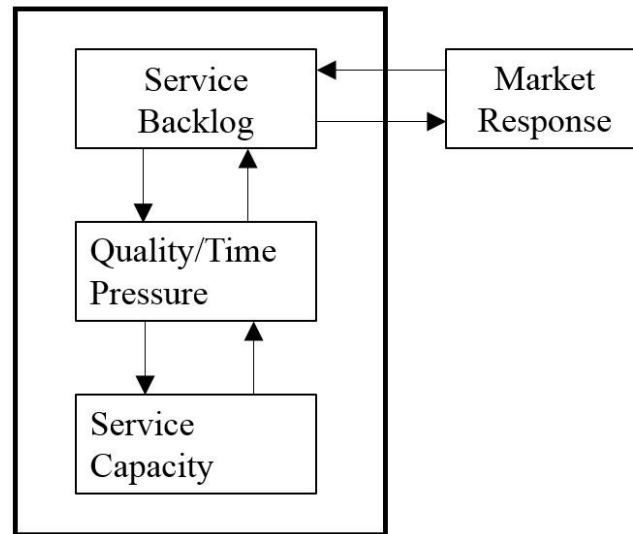
### **1.2.2 Service Quality Theories**

Senge and Oliva (1993) have summarized the original basic model for capacity-quality-cost interactions into a generic theory for application in diverse service industries. The following propositions summarize this theory:

1. Quality of service is always difficult to measure since quality is intangible and subjective
2. Therefore, there is a tendency for services businesses to use more measurable items such as expenses and production figures for managerial decisions
3. This subsequently leads to a systematic bias towards underinvestment in the ability to provide services at a given level of quality (service capacity). Service capacity can be described as a function of number of people, experience levels, skills and infrastructure. And therefore measuring service capacity on expenses and productions figures may be unrelated to service quality.
4. As a result of this underinvestment there are numerous consequences: low levels of service relative to what is possible, high costs of poor quality, low customer loyalty, high turnover of service personnel and average financial performance.
5. Underinvestment in service capacity is often masked by eroding operating standards, so that customers and patients come to expect 'average' service and measure current service based on previous experience and not on absolute standards.
6. As industries continue this cycle of underinvestment and decreasing standards, industry norms which reinforce expense control mechanisms become more influential in shaping individual firm decisions.

This generic theory (*Figure 2*) has been explained in a systems feedback model which simulates the application of this theory (Senge & Oliva, 1993). Subsystems of service backlog, quality/time pressure and service capacity are all interlinked in either direct or indirect mechanisms. The response from the market also plays an influential role on these 'internal' subsystems. In this illustration it is easy to understand the 'knock-on' effects of underinvestment in relevant service quality measures due to the feedback interaction between the different subsystems within an organization.

Figure 2. System Dynamics of the Generic Theory



Source: P. Senge & R. Oliva, *Developing a Theory of Service Quality/Service Capacity Interaction*, 1993, p. 478, Figure 1.

#### 1.2.2.1 The Nordic Perspective

The Nordic perspective focuses on two parameters of quality: technical quality and functional quality (Grönroos, 1984). This perspective suggests that quality results from a comparison between perceived and expected performance. In this model, the perceived service quality is influenced, in broad terms, by what the patient receives - the outcome (technical quality) and how the service is delivered (functional quality) (Cronin & Brady, 2001). Technical quality is determined through medical diagnosis, treatment and procedures, essentially it is reliant on the perceived competencies of medical staff. Functional quality is governed mostly by the interaction between healthcare providers and their patients. This includes themes of manner, communication and relationship which mould the formation of the nature of interpersonal rapport (Beatty, Mayer, Coleman, Ellis & Lee, 1996; Dagger, Jillian & Lester, 2007).

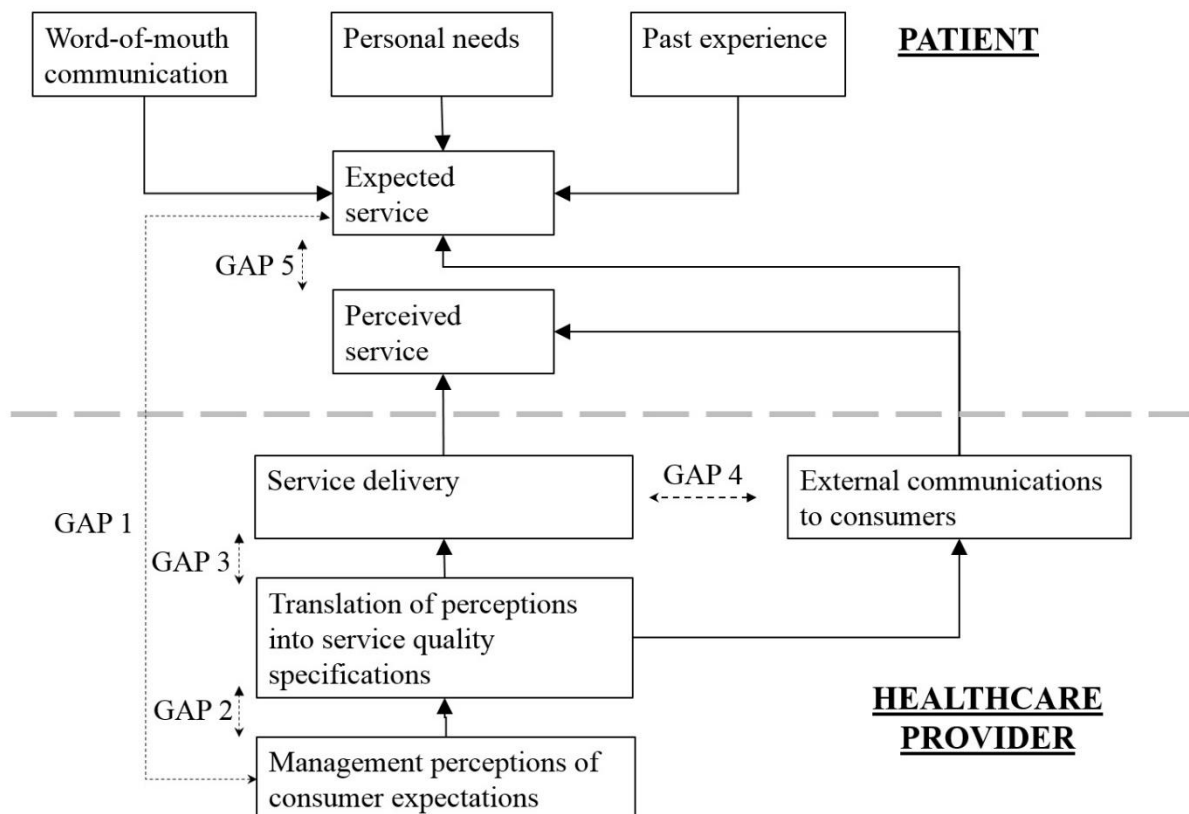
Unfortunately, this aspect of healthcare service quality (interpersonal assessment) is often neglected in developing countries. However, it has been suggested by researchers, that this component be taken more into consideration since it is a key factor in improving the quality of current healthcare systems (Zineldin, 2006). Grönroos et al. (1984) argues that functional quality is more important than technical quality (given that technical quality is at a satisfactory level). He explains that functional quality can play a large role in maintaining high levels of satisfaction by compensating for temporary problems in technical quality.

Following the same Nordic Perspective, Lehtinen and Lehtinen (1982) viewed service quality as a three dimensional construct. Where physical quality, corporate (image) quality and interactive quality formed three separate dimensions. The first two quality dimensions (physical and corporate/image quality) are relatively self-explanatory, describing the tangible aspects of service and the perceptions of customers/patients of the service provider. The interactive quality proposed by Lehtinen and Lehtinen (1982) is described to include animated (interpersonal) and automated (machine-driven) interactions.

### 1.2.2.2 The Gap Perspective

The Gap perspective views quality as the difference (gap) between expected and perceived quality of care on different dimensions (Brady & Cronin, 2001; Parasuraman et al., 1985). These dimensions are characterized by terms which describe the service experience (Reliability, Tangibles, Empathy, etc.). *Figure 3* below illustrates the various gaps and their relationships in the Service Quality Gap Model as described by Parasuraman et al. (1985). Of the five gaps, the customer gap (Gap 5) is considered the most important gap.

*Figure 3. Service Quality Gap Model*



Source: Zeithaml et al., *Communication and Control Processes in the Delivery of Service Quality*, 1988a, p. 36, Figure 1.

The other four proposed gaps in this model can be said to influence and result in the perception-expectation difference. These various gaps are described as follows (Al-Hamdan, 2009; Buttle, 1994):

**Gap 1:** This gap is the customer expectations- manager perceptions gap. This gap presents itself as the difference in expectations and perceptions regarding security and privacy. The lack of interaction between executive management and patients results in misunderstandings of both the demands and needs required to be fulfilled to improve patient satisfaction ratings. The theoretical constructs which govern this gap include: market research orientation, upward communication and the number of levels of management which customer contact personnel need to work through (Zeithaml et al., 1988).

**Gap 2:** Healthcare facilities also face problems in reacting to the services expected from patients. This gap is the difference between the management perception of patient expectations and service quality specifications. The constructs which govern this gap include aspects of management commitment to service quality, goal-setting, task standardization and perception of feasibility (Zeithaml et al., 1988).

**Gap 3:** Is the difference between service quality specifications and the actual service delivered. This is a particularly difficult aspect due to the inconsistency of patient behavior.

**Gap 4:** This is the service delivery and external communications gap. Health facilities do don't always succeed in informing patients of their endeavors to meet their expectations and deliver on promises. As a result patient expectations are not aligned to the goals and strategies of the facility. If patients know what they are entitled to, there will be less discrepancy in the expectations versus perception gap.

**Gap 5:** This gap is described as the level of service expected from the provider versus the perceived service. Expectations are viewed as the standards the patient applies to the service experience, while perceptions are the subjective analysis of the actual experience. Decreasing this gap is imperative for healthcare facilities to ensure satisfied patients (Akter, Upal & Hani, 2008).

In 2000 a model was developed to incorporate Total Relationship Management (hereinafter: TRM) (Zineldin, 2000). Total Relationship Management places greater emphasis on both internal and external relationships as well as individual accountability in improving both productivity and profitability. The 5Qs model is described by its creators as an expansion on the SERVQUAL tool and it is ruled by the expectation of continuous improvement of five qualities; quality of object; quality of process; quality of infrastructure; quality of interaction; quality of atmosphere with emphasis on relationship building (Zineldin, 2000).

While the 5Qs model may be an appropriate method of ascertaining organization-wide quality (Zineldin, 2006; Zineldin, 2000), the most widely accepted measure of service quality remains the expectancy disconfirmation theory (Rahman, Haque, & Kahn, 2012). Therefore, this study is based on the premise that using Gap perspective methodology is most appropriate in the assessment of service quality perception and satisfaction relationship.

### **1.2.3 The Relationship Between Perceived Quality and Satisfaction**

Perceived quality is the quality which is defined from the patient's point of view. Zeithaml (1988) explains that perceived quality is a patients' overall judgment about the excellence of healthcare services, taking into account the various aspects of service. This judgment is made against a framework of technical, functional, environmental as well as administrative qualities. Quality of healthcare services has been described by six factors namely, efficiency, effectiveness, efficacy, optimality, legitimacy and equity (Ibrahim, 2008).

Naturally, we can assume that patients' main concern when using healthcare facilities is their health condition, the medical outcome and medical staff quality, it is natural to assume that they will be highly motivated to seek the best medical treatment and service quality. Thus patient perception of service quality will influence patient choice of healthcare provider. Perceived service quality has been suggested to be an attitude which is closely related but not equal to satisfaction. Fornell et al. (1996) suggests service quality as one of three antecedents to satisfaction (the other two being expected and perceived value). The latter was further confirmed by Cronin and Taylor (1992) whose study (across a variety of firms) supported this directionality of the relationship.

Satisfaction is an affective reaction to a service experience as a result of some sort of evaluation process, while perceived service quality is accepted as an influential cognitive construct (Choi et al., 2005). This is further supported by Tam (2007) who suggests that satisfaction arises from a comparison of perceptions with expectations of service. As patient satisfaction becomes an integral part of hospital management, numerous studies have been dedicated to determining the relationship between these two parameters (Choi et al., 2005; Smith & Engelbrecht, 2001).

Badri, Attia and Ustadi (2008) believes that patient perceptions are crucial in their role in service evaluation, creating and reaching healthcare standards, planning and in the implementation stages of improving service delivery. In fact, research suggests that patient satisfaction ranked in the top three most important performance measures in healthcare services (Zabada, Munchus, & Singh, 2001). Several studies have found that service quality dimensions that influence satisfaction ratings vary in different contexts. This includes public and private hospitals, primary healthcare and more advanced healthcare facilities as well as patient health status (Bowers, Swan & Koehler, 1994; Brown &

Swartz, 1989; Gooding, 1995; Reidenbach & Sandifer-Smallwood, 1990; Woodside & Shinn, 1988).

### **1.3 Measuring Quality and Satisfaction of Healthcare Services**

In previous decades performance of healthcare facilities were focused on tangible parameters such as infrastructure and indicators like mortality and morbidity. However, recently, healthcare facilities have changed their views to place greater importance on patient satisfaction and quality perceptions (Silvestro, 2005).

This change in focus (being more patient quality perception orientated has improved service delivery processes) and has proven to have a number of positive managerial implications (Wensing & Elwyn, 2003). Resulting in patient needs and expectations evolving, increased access to information and less dependent of satisfaction on healthcare outcomes alone. Understanding patient perceptions on quality of service is increasingly important to effectively manage healthcare services (Mejabi & Olujide, 2008). Patient satisfaction is important for a number of reasons, and being sensitive to patients' perception of quality has numerous benefits for management (Ibrahim, 2008).

Firstly, satisfied patients are more likely to maintain a consistent relationship with a particular provider which has benefits for medical record keeping. The second reason relates closely to the first - the higher the satisfaction levels of patients, the more likely the adherence to medical regimes and treatment plans (Fan et al., 2005; Freed, Ellen, Irwin & Millstein, 1998). This is especially important in the South African context with regards to the use of antiretroviral drugs and Tuberculosis treatment.

Thirdly, identifying sources of satisfaction/dissatisfaction can reveal systemic weaknesses and thereby improve risk management. Lastly, measuring patient perceptions on quality provides important information on performance thereby contributing to quality management systems (Gagallah, Anwer, Rady, & Sallam, 2003). By understanding the perceptions of the public on the quality of service provided in public healthcare sector, effective and successful strategies for perception improvement can be developed.

#### **1.3.1 Challenges in Measuring Perceptions**

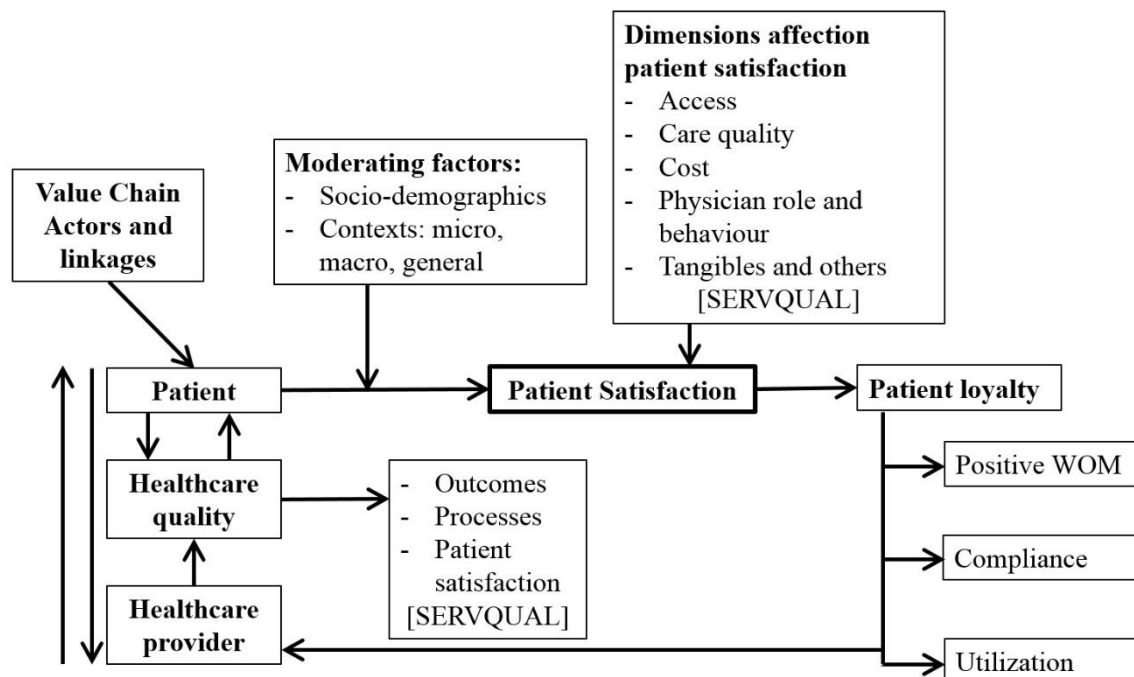
Measuring patient quality perceptions has proved to be a challenging task. Besides external socioeconomic and demographic influences on standards of quality, the abstractness and the elusive definition of quality increases the complexity of this concept (Ibrahim, 2008). The intangibility of output produced through medical services as well as the service size, complexity and specialization within these organizations increases the difficulty of evaluation for patients as well (Eriz & Figueiredo, 2005).

Determining the underlying factors of quality has been the focus of many studies (Coovadia, 2008; Parasuraman et al., 1988; Tam, 2007; Sofaer & Gruman, 2003). Naidu

(2009) developed a comprehensive model in an effort to achieve greater understanding of healthcare services (Figure 4). This model, based on reviews of 24 articles, captures the intricacies of the interaction between different factors and dimensions of patient satisfaction and thus service quality. It shows how patients and providers create and affect service quality.

Patients mainly influence outcomes through compliance and properly describing symptoms. Socio-demographics and context serve as moderating factors which also affect satisfaction. Other dimensions which affect satisfaction such as Access and Care quality are also outlined in the diagram. These dimension and those of healthcare quality are indicated to measureable through the SERVQUAL tool which will be discussed later in this chapter. Understandably, the importance of the dimensions of service quality has also shown to differ between industries (Bopp, 1990; Parasuraman et al., 1994).

Figure 4. Dimensions of Healthcare Services



Source: A. Naidu, *Factors Affecting Patient Satisfaction and Healthcare Quality*, 2009, p. 378, Figure 1.

There has been some criticism in using patients in evaluating service quality (Bopp, 1990), largely due to the fact that majority of patients do not have the technical knowledge to assess such a parameter. It has also been argued that due to this lack of technical knowledge, patients do not know the actions which are in their best interest and thus their preferences may be contrary to what is, in fact, good quality care (Donabedian, 1992).

The counter-arguments supporting the relevance and legitimacy use of patient perceptions are widely accepted and researchers are in agreement that the patient's perspective may



represent the most important opinion (O'Connor, Carney, & Shewchuck, 1994). Using patients as informants can provide a primary source of information and as a secondary/confirmatory function of predetermined measures (Badri et al., 2008).

Numerous studies have shown that service providers' perception of patient satisfaction were overestimated and the significance of certain dimensions were weighted differently (illustrated by Gap 1 in *Figure 3*) (Laine, Davidhoff, Lewis, Nelson & Nelson, 1996; Lynn & Millen, 1999; O'Connor et al., 1994). For example management has shown to emphasize efficiency and cost effectiveness as major concerns where users of the service were more concerned with patient-centered responses to their needs (Wensing & Elwyn, 2003). Thus using provider perceptions may reflect medical quality of care in terms of curative norms, but for the purposes of patient satisfaction, may prove to be less relevant.

This is further corroborated by (Petersen, 1988) who suggests that whether a patient is right or wrong is not important; but rather what is important in assessing the quality of healthcare is how patients feel about or perceive the services rendered. The rationale for using patient perceptions is well accepted as patients may be more sensitive to differences across healthcare systems; better perhaps than more traditional outcome measures (Rosenthal & Shannon, 1997).

However, taking the evident lack of technical knowledge into consideration, most studies evaluating patient satisfaction and quality dimensions use the 'process' approach in their research design; focusing on staff characteristics and clinical care (Al-Mandhari, Haran & Hassan, 2004; Anderson et al., 2001; Attree, 2001; Infante et al., 2004; Ngo-Metzger, Clarridge, Davies, Lezzoni, Manocchia, Masagli, & Phillips, 2003; Parasuraman et al., 1991; Sofaer & Firminger, 2005).

### **1.3.2 Understanding the Dimensions of Perceived Quality**

Marley, Collier and Goldstein (2004) reported the differences between technical and process quality. They found that while both these categories were important to patients, process quality had the biggest influence on satisfaction ratings. Researchers have proposed a number of dimensions to be considered when determining quality of services in a variety of settings (Murfin, Bobo & Diamantopolous, 1995). The most commonly used dimensions reported in the literature are: Effectiveness, Safety, Responsiveness, Accessibility, Equity, Efficiency, Acceptability, Appropriateness, Competence, Continuity and Timeliness (Kelley & Hurst, 2006).

Most studies have defined service quality as having five to seven dimensions, as illustrated in **Error! Reference source not found.** These dimensions have been used to study service quality perceptions in a number of cases. Modified versions of these dimensions have been used in studies which focused on women's perception of healthcare (Anderson, Barbara, Binko, Scheider, Scholle, Gwinner, & Weisman, 2001); medical staff, patients

and their relatives (Attree, 2001); foreign nationals in the USA (Ngo-Metzger et al., 2003) and patients with chronic conditions (Infante et al., 2004), all found at least five of the seven dimensions influential in patient perception.

Table 4. Service Quality Perception Models

(Tam, 2007)		(Sofaer & Gruman, 2003)	(Anderson et al., 2001)	(Attree, 2001)
1.	Doctors technical quality	Patient-centered care	Understanding women's healthcare needs and privacy	Availability and accessibility to patients
2.	Doctors' interpersonal skill	Access	Access	Patient involvement
3.	Quality of nurses	Courtesy and emotional support	Communication	Encourage close and sociable relationship
4.	Quality of support staff	Communication and information	Care co-ordination	Holistic care
5.	Efficiency of appointment staff	Technical quality	Providers' clinical skills	Open communication and information flow
6.	Waiting time	Efficiency of care organization	Temperature, seating and decor	
7.	Duration of consultation	Structure and facilities		
8.	Respect for patient's privacy			
9.	Physical environment			
(Infante et al., 2004)		(Salia et al., 2008)	(Ngo-Metzger et al., 2003)	(Parasuraman et al., 1988)
1.	Trusts and believes patient	Waiting for appointment	Access to care and interpreters	Reliability
2.	Convenient patient times	Waiting time	Providers listen to patients	Empathy
3.	Interpersonal skills	Communication	Respect for patient's preferences	Assurance
4.	Compassionate	Access	Staff arrange follow-up appointments	Responsiveness
5.	Variety of clinical services	Lack of involvement in decision making	Provider's knowledge and respect for non-Western health beliefs	Tangibles
6.	Clinical skills	Lack of continuity		
7.	Good triage system			

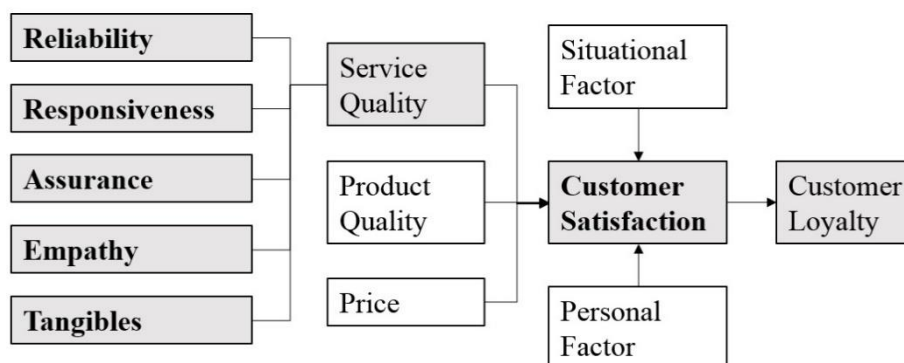
Other studies have determined that nursing care is an important characteristic of overall healthcare satisfaction (Andaleeb, Khandar, & Siddiqui, 2007; Carmen, 2000; Merkouris, Lemonidou, & Papthanassoglou, 2004). Waiting time has also been shown to be an important indicator in determining service quality perceptions and satisfaction (Vukmir, 2006; Salia, Aalto, Kaila, & Kaunonen, & Mattila, 2008) and has thus appeared in many multidimensional quality perception models (**Error! Reference source not found.**).

Additionally, Waiting time has been demonstrated to moderate satisfaction through the loyalty relationship (Anderson, Barbara & Feldman, 2007; Bielen & Demoulin, 2007). Other dimensions which make multiple appearances in service quality assessments include communication and interpersonal relationships with staff as indicated in **Error! Reference source not found.** (Anderson, Barbara, & Camacho, 2007; Salia et al., 2008).

Parasuraman et al. (1985) has developed a measurement tool which has been empirically proven to be useful in healthcare settings as well as in public healthcare systems in developing countries (Babakus & Mangold, 1992; Boshoff & Gray, 2004; Smith & Engelbrecht, 2001; Taner & Antony, 2006;). This tool measures service quality in terms of underlying elements/dimensions and is aptly named the SERVQUAL (service/quality) questionnaire.

Another aim of this study is to identify antecedents of customer satisfaction and how influential they are individually in determining satisfaction ratings. In assessing suitable measuring devices in these types of studies, the SERVQUAL assessment dimensions have also been linked to customer satisfaction and is thus a good tool for the purposes of this study. *Figure 5* illustrates the relationship between the SERVQUAL dimensions and the precursors to customer satisfaction.

*Figure 5. Relationship Between Satisfaction and SERVQUAL Dimensions*



Source: Wilson et al., *Integrating Customer Focus Across the Firm*, 2012, p. 74, Figure 4.1.

It assumed that there are three antecedents of satisfaction namely; product quality, price and service with the latter being measured through the SERVQUAL questionnaire

(Wilson, Bitner, & Zeithaml, 2012; Zeithaml, Bitner & Gremler, 2006;). The SERVQUAL assessment works under the supposition that five dimensions of quality (tangibles, reliability, Responsiveness, Assurance and Empathy) underlie service quality and, as indicated in *Figure 5*, indirectly influence customer satisfaction.

#### **1.4 SERVQUAL as an Assessment Tool of Service Quality**

The basic SERVQUAL questionnaire is a 22 question survey which determines the difference between perceived and expected levels of quality across five proposed dimensions. In the original scale development process, it was suggested that service quality consisted of ten dimensions (Parasuraman et al., 1985):

1. Tangibles: the appearance of physical artefacts and staff members
2. Reliability: the ability to deliver the promised service
3. Responsiveness: the readiness of staff to help in a pleasant and effective way
4. Competence: the capability of staff members in executing the service
5. Courtesy: the respect, thoughtfulness and politeness of staff
6. Credibility: the trustworthiness and honesty of the service provider
7. Security: the absence of doubt, economic risk and physical danger
8. Access: the accessibility of the service provider
9. Communication: an understandable manner and use of language
10. Understanding the customer: efforts by the service provider to know and understand the customer.

However, these were later reduced to five efficacious dimensions. These include reliability, Empathy, Assurance, Responsiveness and Tangibles assets, each with its own range of relatable statements (Parasuraman et al., 1988). The questions in the SERVQUAL questionnaire assess each dimension by ratings of pertinent statements. Below is the statement structure for this study:

1. Tangibles (Statements 1-4)
2. Reliability (Statements 5-9)
3. Responsiveness (Statements 10-13)
4. Assurance (Statements 14-19)
5. Empathy (20-23)

Tangibles refer to the appearance of amenities. The condition of surrounds, including equipment, staff and cleanliness are all elements of this dimension. Physical context has been shown to be positively related to patients' judgments of service quality (Grewal, Gotlieb & Marmorstein, 2000)

Reliability refers to the ability to perform promised services accurately and dependably (Parasuraman et al., 1991). In the healthcare setting one of the factors would include illness diagnostic precision.

Responsiveness is the willingness of staff to help patients and provide prompt service (Parasuraman et al., 1991).

Assurance is the ability to convey trust and confidence through courteous and knowledgeable behavior (Parasuraman et al., 1991). This includes competence, respect, communication and good interpersonal relationships. This is an important aspect of service delivery where patients may feel uncertain in their ability to evaluate the outcome of a high risk service.

Empathy is the provision of care and the ability to show compassion. Being approachable and sensitive are key elements (Parasuraman et al., 1991).

Using the SERVQUAL questionnaire to assess quality requires the difference between the perceived and expected levels of quality relating to the above mentioned statements. For each of the dimensions, the SERVQUAL score was computed as in equation (1).

$$SERVQUAL\ SCORE = Perception - Expectation \quad (1)$$

The SERVQUAL questionnaire has been used in a number of industries and validity of this questionnaire has been shown to be applicable in a number of business sectors (Foster, 2001). This questionnaire has been widely accepted and has been used as a generic tool that captures the multidimensionality of healthcare service quality (Andaleeb, 2001; Brady & Carmen, 2000; Cronin & Brady, 2001; Cronin & Taylor, 1992; Gibson, 2009; Naidu, 2009; Taner & Antony, 2006). *Figure 4* indicates how useful the SERVQUAL instrument has been in assessing a large proportion of factors which influence satisfaction (Naidu, 2009). Empirical studies have shown that SERVQUAL as a survey instrument was broadly transferrable to both public and private healthcare settings (Youssef, Boviard, & Nel, 1996; Curry & Sinclair, 2002).

Modified versions of this questionnaire have been successfully used in healthcare service quality studies in the USA (Babakus & Mangold, 1992), Turkey (Taner & Antony, 2006), UAE (Jabnoun & Chaker, 2003) and South Africa (Boshoff & Gray, 2004; Smith & Engelbrecht, 2001). Although modified versions were used in order to account for certain socioeconomic or systemic differences, the five core dimensions suggested in Parasuraman et al. (1985) remained underlying components of these studies.

#### **1.4.1 Strengths and Weaknesses of the SERVQUAL Tool**

As is evident from the reviewed literature, the SERVQUAL questionnaire and its framework have been widely used and accepted. Through many studies, a number of

benefits have been drawn from using this particular questionnaire to measure service quality (Rashid & Jusoff, 2009; Rohini & Mahadevappa, 2006).

1. It is an accepted standard for assessing the multidimensionality of service quality
2. It has been statistically proven to be valid in a variety of service situations
3. It has proven to be reliable
4. The questionnaire is parsimonious in that its set number of closed questions means that it is easily and quickly completed
5. It has a standardized analysis procedure.

Although it has been implemented extensively, the SERVQUAL assessment tool has faced some criticism. Cronin and Taylor (1992) have criticized that only performance measures where adequate for assessing service quality. Validity of this tool has also been questioned in that not all dimensions may be useful and should not be considered generic (Carmen, 2000). The ambiguity of the expectations statements and the unstable dimensionality of the SERVQUAL has also been brought into question (Ausboteng, McCleary & Swan, 1996). Despite theoretical and operational critique that has been published, the usefulness as well as consistent validity and reliability scores, has maintained the SERVQUAL tool as prevalent instrument to service quality measurement (Buttle, 1994; Naidu, 2009).

In reference to the criticism and implications thereof, (Ausboteng et al., 1996, p. 80) concluded that ‘until a better but equally simple model emerges, SERVQUAL will predominate as a service quality measure’. In order to mitigate the aforementioned issues, modifications to the original SERVQUAL has also be suggested and practiced to better suit certain populations and sectors. Zineldin (2006) included additional dimensions of atmosphere, infrastructure and interaction between staff and patients. In a South African study the original five dimension SERVQUAL was utilized and shown to be appropriate for the South African population without the need for additional questions (Boshoff & Gray, 2004).

Taking all these items into consideration, this study has been designed to diminish the negative attributes identified above. Offsetting the identified ‘high risk’ issues (validity and reliability) through thorough statistical testing and appropriate data gathering techniques, should result in accurate and meaningful conclusions. This particular research study will focus on the discrepancies in Gap 5 (*Figure 2*) according to a modified SERVQUAL questionnaire for the South African population (Boshoff & Gray, 2004; Parasuraman et al., 1988).

## **1.5 Research Questions and Hypotheses**

Acknowledging the need for improvement in the healthcare sector in South Africa, certain steps need to be taken to ensure that strategies are correctly developed. Paying attention to the short comings of the current healthcare system will provide the first step in developing

appropriate performance measures. Studies have revealed that assessing these shortcomings from the patient/user's perspective may provide the most insightful source of information and provide greater customer (Badri et al., 2008; Silvestro, 2005). This is because outcomes set by governmental departments may not be in alignment with the actual needs and desired service level of patients.

Improved quality of healthcare has been highlighted and an important outcome for the NDoH. This is reflected in the official vision of the department: "To improve health status through the prevention of illnesses and the promotion of healthy lifestyles and to consistently improve the health care delivery system by focusing on access, equity, efficiency, **quality** and sustainability" (NDoH, 2010, p. 10).

However, many of the strategies for these improvements are based on traditional performance measures and goals set by external organizations such as the United Nations' Millennium Development Goals (WHO, 2005). While these measures are useful and appropriate on a clinical outcomes and tangible infrastructure, they do not necessarily address the underlying service qualities which may be impeding the effectiveness of the changes which have been implemented.

Studies addressing service quality emphasize the importance and relevance of determining the perception of service quality by the users (Petersen, 1988; Rosenthal & Shannon, 1997). This literature supports the notion that, while patients may not hold complete information on organizational structure and processes, their perceptions may be more sensitive to shortcomings in healthcare delivery systems than are many traditional measures of quality (*e.g.* risk adjusted mortality and disease infection rates).

Further value has been added to this assessment of by ascertaining the level of service expected by these users and the discrepancy between the two (Zeithaml, 1988; Silvestro, 2005). Understanding these perceptions provide management and strategist with a solid foothold to begin addressing patient needs through service quality improvement. Thus one major question to be answered is whether or not there are any differences between patients' expectations and perceptions on all dimensions of quality of healthcare systems. This study will endeavor to answer this question through its first hypothesis:

Hypothesis 1: There is a difference between the expected and perceived quality of service.

$$H_1: \mu_{\text{expected}} \text{TOTAL QUALITY} \neq \mu_{\text{perceived}} \text{TOTAL QUALITY}$$

$$H_0: \mu_{\text{expected}} \text{TOTAL QUALITY} = \mu_{\text{perceived}} \text{TOTAL QUALITY}$$

Quality has been described as a multidimensional construct and although the original dimensions as determined by (Parasuraman et al., 1988) often emerge, different populations have been known to display different dimensions underlying their concept of quality (see **Error! Reference source not found.**). Thus it will be important in this study to first determine the factor applicable to this population. Identifying the expectant and

perceived ratings of these dimensions will provide insight into the current experience of patients i.e. whether the current service quality meets their expectations or not. This will allow stakeholders to effectively design strategies to target the needs of patients.

Therefore, a number of questions regarding the nature of the dimensions pertinent to this particular population arises. First it is important to understand how patients rate the quality of service in public healthcare facilities as well as what they expect from providers in terms of service quality. Then identifying the largest/smallest gap between these perceptions and expectations will provide more insight into the greatest shortfall in patient needs. Lastly these gaps need to be assessed as to determine how many, if any, of them are large enough to comment on to provide useful conclusions indicated by deficits. This leads to the second hypothesis:

Hypothesis 2: There is a difference between the expected and perceived quality of service for each emergent dimension of service quality.

$$H_1: \mu_{\text{expected DIMENSION}_x} \neq \mu_{\text{perceived DIMENSION}_x}$$
$$H_1: \mu_{\text{expected DIMENSION}_x} = \mu_{\text{perceived DIMENSION}_x}$$

This link between service quality improvement and gains in patient satisfaction has been well documented (Cronin & Taylor, 1992; Fornell et al., 1996). Patient satisfaction has been shown to improve patient loyalty as well as treatment adherence and health status (Wilson et al., 2012). Thus it seems obvious that knowing how to improve these parameters would be in the best interest of governmental departments and management. Therefore, using the emergent dimensions of quality, this study will seek to determine which dimensions of patients' perceptions significantly influence the overall patient satisfaction rating.

Hypothesis 3: Patient satisfaction is influenced by dimensions of service quality

$$H_1: \text{Satisfaction} \neq f \{ \text{Dimensions of service quality} \}$$
$$H_0: \text{Satisfaction} = f \{ \text{Dimensions of service quality} \}$$

The evidence discussed in the previous sections provides evidence that improved service quality is imperative to provide effective care to the South African population. The perception of quality service remains an important aspect in patient care and plays a large role in ensuring treatment adherence. By understanding the needs of patients, perceived service deficits as well as the importance patients ascribed to antecedents of satisfaction, managers and governmental authorities can provide improved quality of care and sooner reach the outlined governmental and United Nations directives.



## **2 METHODOLOGY**

### **2.1 Research Design**

This study takes on a quantitative design. Quantitative research design is used predominantly to predict, describe and explain quantities as well as relationships from a defined sample. By collecting numerical data, researchers are able to describe details of a situation, social environment or relationship. Statistical methods were followed to analyze data in order to make inferences about results of research.

This study was descriptive in nature in that it aimed to describe the characteristics of a phenomenon and relation between dimensions of service quality and satisfaction. The main objective of this study was to determine the difference between the expected quality of service from a healthcare facility and the perceived quality of service from South African public healthcare facilities. Secondly, this study aims to understand the importance given to certain dimensions in overall satisfaction of healthcare service quality in South African. In order to determine perceptions of healthcare service delivery a self-administered questionnaire will be provided to South African citizens who have healthcare facilities.

The inclusion criteria considered for this study are described as follows: participants must be South African citizens who are older than 18 years old. All respondents should have direct or indirect experience with South African public healthcare facilities in order to provide a valuable opinion. Exclusion criteria included participants who were not from South Africa as well as those who had not had experience with South African healthcare facilities within the last two years.

Quantitative analysis using Statistical Program for Social Sciences (SPSS) and Microsoft Excel will be conducted. Descriptive statistics will be calculated and paired sample t-tests and effect size calculations will be incorporated to prove hypotheses and thereby answer research questions. Regression analysis using the satisfaction rating as dependent variable will also be conducted to determine the individual importance of each dimension on patient service quality.

### **2.2 Sample**

A non-probability sampling method was used in this study. This means that the population may not be accurately represented. The type of non-probability sampling used can be described as convenience sample since the population sample was based on favorable availability conditions.

The sample is based on non-probability sampling because:

1. The questionnaire was only available in one language.
2. Majority of sample have access to internet

## 2.3 Population

The population is defined as the entire group of persons the researchers want to study and contains all the variables of interest to the research. The population of this study is healthcare facility users throughout South Africa. This includes the provinces of the Western Cape, Gauteng and the Eastern Cape where the largest number of service delivery protests take place (Turok, 2010).

Table 5 indicates the healthcare load placed on facilities on a provincial level (Econex, 2010; NDoH, 2010). The participants answered the questions anonymously.

Table 5. Healthcare Demographics per Province

Province	Number of public hospitals	Population per facility	Doctors (per 1000 population)
Western Cape	58	92,36	135
Eastern Cape	94	70,73	31
Northern Cape	27	42,504	37
Free State	33	87,952	55
KwaZulu Natal	73	143,141	53
North West	26	132,708	20
Gauteng	28	376,118	102
Mpumalanga	27	133,585	50
Limpopo	47	111,217	17

## 2.4 Measurement Instrument

The perception of healthcare quality will be assessed through the SERVQUAL questionnaire. This questionnaire identifies five underlying components of service quality namely, reliability, Empathy, Assurance, Responsiveness and Tangibles. Each component is comprised of 5-7 questions, resulting in a standard questionnaire of 46 questions (23 questions asked for expected and a duplicate 23 questions for perceived quality). These questions will be asked on a Likert scale of 1-7 (strongly disagree to strongly agree). This questionnaire will be modified to include demographic parameters as well as a question pertaining to service satisfaction. The questionnaire is presented in two parts.

### 2.4.1 PART ONE: The SERVQUAL Questionnaire

The SERVQUAL questionnaire includes a set of 22 statements which are altered accordingly to gather both expected and perceived scores. Additional adjustments were made in order to make the questionnaire more suited for the healthcare setting and ensure better understanding of statements. This questionnaire included a statement based on technical skill of nurses and doctors individually resulting in a 23 statement questionnaire. As a result a questionnaire consisting of 46 questions pertaining to quality assessment was

developed (see Appendix C1 for complete questionnaire). Examples of the questions upon which variations for expected and perceived ratings were asked are presented in

(derived from statements suggested by Parasurman et al., 1988 and Odgerel, 2010).

Table 6. Variations of SERVQUAL Questions for Expectant and Perceived Scores

<p><b>Tangibles</b></p> <ol style="list-style-type: none"> <li>1. <i>Hospitals should have up to date and well maintained equipment</i></li> <li>2. <i>Cleanliness and hygiene in hospitals should be excellent</i></li> <li>3. <i>The nurses and doctors should be clean and well-groomed</i></li> <li>4. <i>The patient room should be comfortable enough</i></li> </ol> <p><b>Reliability</b></p> <ol style="list-style-type: none"> <li>1. <i>Excellent hospitals should provide treatment, diagnostic tests and other services in an acceptable time period</i></li> <li>2. <i>When a patient has a problem, the hospital should show sincere interest to solve it</i></li> <li>3. <i>Doctors should explain health conditions, diagnosis and treatment in an understandable way</i></li> <li>4. <i>Nurses should explain to patients exactly when and what they are going to do</i></li> <li>5. <i>If you are admitted, doctors should monitor your health status regularly/daily</i></li> </ol> <p><b>Responsiveness</b></p> <ol style="list-style-type: none"> <li>1. <i>Doctors/nurses should respond immediately when called by patients</i></li> <li>2. <i>Doctors/nurses should be willing to help patients</i></li> <li>3. <i>Waiting time for admission shouldn't be longer than a week</i></li> <li>4. <i>Waiting time for daily service shouldn't be longer than 45min</i></li> </ol> <p><b>Assurance</b></p> <ol style="list-style-type: none"> <li>1. <i>Doctors should be competent</i></li> <li>2. <i>Nurses should be skilful</i></li> <li>3. <i>Patients should feel confident when receiving medical treatment</i></li> <li>4. <i>Excellent hospitals should provide privacy during treatment</i></li> <li>5. <i>Doctors/nurses should be respectful towards patients</i></li> <li>6. <i>Doctors/nurses should have good knowledge to answer patients' questions</i></li> </ol> <p><b>Empathy</b></p> <ol style="list-style-type: none"> <li>1. <i>Nurses in excellent hospitals should be caring</i></li> <li>2. <i>Doctors/nurses in an excellent hospital should listen to you attentively</i></li> <li>3. <i>Doctors should spend enough time with each patient</i></li> <li>4. <i>Operating hours in an excellent hospital should be convenient for patients</i></li> </ol>
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Patient satisfaction towards the quality of public healthcare services was determined by a 5 point Likert-scale question. This question allowed participants to rank their satisfaction in terms of the following statements: very dissatisfied; dissatisfied; neutral; satisfied and very satisfied. The median, standard deviation as well as maximum and minimum was calculated.

## **2.4.2 PART TWO: Subject Demographics**

This section of the questionnaire was used to determine the general identity of the population and also exclude certain participants based on exclusion criteria. Questions pertaining to perception formation were asked to understand the viewpoint of the participant, the frequency of visits was also included to ensure that perceptions and expectations were appropriate and relevant. The question regarding age was divided into four age groups: 18-25; 26-40; 41-60 and older than 60.

## **2.5 Procedure**

The questionnaire was activated on the 10 March 2014 and data was collected for a period of three weeks. Respondents were informed that participation was voluntary. Anonymity was ensured and no personal information which could be identified was requested on the questionnaire.

The questionnaire was distributed online using 1cs.si as well as via Facebook groups, university forums and e-mails to ensure a representative sample was reached. Hard copies were also distributed to church groups and neighborhoods to those parts of the population who do not have access to internet.

## **2.6 Empirical Data Analysis**

Statistical analysis methods were used to determine internal and external validity of the questionnaire. Hypothesis one and two were proven using paired t-tests to determine whether there is a significant difference between the expectations and perceptions in service quality service in healthcare as well as the dimensions thereof (Tangibles, Reliability, Responsiveness, Assurance and Empathy). Regression analysis was performed to determine a model which can best describe the importance attributed to different quality assessment dimensions on satisfaction. This analysis was conducted on perceived service quality scores. Significance levels were set to  $p < 0.05$ .

### **2.6.1 Reliability Data Analysis**

The purpose of reliability testing is to determine whether data is trustworthy or not. Reliability refers to the extent to which a set of variables, in this case, statements, is consistent in what it is intended to measure (Hair, Anderson, Black, & Tatham, 2006). A common tool in assessing reliability is to measure internal consistency. The concept of internal consistency is that the items (in this example, statements) should all measure the same thing (in this case dimension) and therefore should be highly correlated. Two diagnostic measures should be used to determine internal consistency (Hair et al., 2006):

1. Inter-item correlation (correlation  $> 0.3$ ); this measures the correlation among items
2. Using Cronbach's alpha is ( $> 0.7$ ) another method which is often used to assess the consistency of the entire scale.

These measures of reliability will be assessed as the various dimensions develop.

Validity testing is the extent to which a set of measures represents a concept of interest with discriminant validity assessing the degree to which two conceptually similar concepts are distinct (Hair et al., 2006) In order to assess the discriminant validity of dimensionality of the SERVQUAL, the data was subjected to an exploratory analysis. The 'expectation' values obtained were used since the dimensionality of the quality of service should be determined, not through what patients perceive, but rather through what they expect (Luke, 2007).

Bartlett's test of sphericity was used to assess the factorability of the statements. Results indicated that these variables were indeed able to be grouped into certain dimensions (Chi-Square= 1575.835, df=253 and  $p < 0.001$ ). With a KMO (Kaiser-Meyer-Olkin) value of 0.827, well above the acceptable level of 0.5 (Hutcheson & Sofroniou, 1999) indicating a high common variance and therefore that factor analysis is appropriate for this data.

### **2.6.2 Factor Analysis**

Factor analysis is used to identify underlying structure in a given set of data and is used to differentiate among groups based on a set of variables (Hair et al., 2006). This study used exploratory factor analysis to discover the factor structure of the data collected from the sample (the dimensions of service quality. This was to determine if these factors did, in fact align with Parasuraman, Berry and Zeithaml (1985)'s five dimension of service quality; and if not, determine which factors constitute service quality for this population.

Upon running the exploratory factor analysis a total of seven factors met the requirement of having an Eigen value greater than 1, thereby indicating that the factor explains more variance than a single variable. It is interesting to note that a number of these dimensions/factors loaded similarly to dimensions proposed by Parasuraman, Berry and Zeithaml (1988) (Table 7). Statistical literature varies in its acceptable threshold of factor loading; ranging from 0.8 to 0.19 if significant. However, 0.3 has been generally accepted as an appropriate salient loading (de Vaus, 2014; Kline, 2014).

Statements 3, 9 and 10 present with relatively low factor loadings, however factors above 0.3 are considered moderately high and acceptable in this instance and has been accepted in quality assessment studies (Paas & Sijtsma, 2008; Zakuan, Saman, Shararoun, & Yusof, 2010). Although statement nine has a low loading factor (0.31), there is no evidence of cross-loading in this sample. The statements were loaded into seven dimensions with the Eigen value ranging from 6.559 to 1.008 for these extracted dimensions (Table 8). The factor structure was optimized using VARIMAX rotation. The cumulative percentage of variance extracted from the seven dimensions was 49.16%.

The first factor explains 10.25% of the total variance and was labelled Empathy. This dimensions included all four statements of the original Empathy dimension plus two from

the Responsiveness dimension. Factor two was named Patient-centeredness (7.47% of variance) and contained four of the six statements pertaining to the original Assurance dimension.

Table 7. Factor Loading Structure

Statement number	Factor						
	1	2	3	4	5	6	7
21	0.82						
20	0.64						
22	0.62						
11	0.44						
23	0.42						
10	0.35						
18		0.66					
17		0.55					
19		0.47					
16		0.45					
14			0.87				
15			0.60				
8				0.83			
7				0.47			
4				0.40			
13					0.84		
12					0.54		
1						0.55	
2						0.46	
3						0.35	
9						0.31	
5							0.67
6							0.52

The third factor, Technical ability, was composed of the remaining two original Assurance statements. Dimensions four and five both contributed 6.7% to the total variance and were named Reassurance and Waiting time, respectively. Factor number six which pertains to both structural and organizational Infrastructure contributed 6% and the last dimension was named Urgency and explains approximately 5% of the total variance.

All factors exhibited acceptable levels of reliability. The level of 0.6 has, although limited, been view as an acceptable level of reliability, but greater than 0.7 is preferred (Hair *et. al.*, 2006). The lowest level Chronbach's alpha (0.5) was for the infrastructure dimension, but literature does not deem this an unacceptably low value (Kline, 2000). All of the statements are loaded into the seven dimensions, they were named accordingly as described by the grouped statements (see Table 9).

Table 10 indicates the loadings on the original dimensions proposed by (Parasuraman et al., 1988).

Table 8. Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %	Total	% of Variance	Cum. %
1	6.56	28.52	28.52	6.08	26.45	26.45	2.36	10.25	10.25
2	1.87	8.13	36.65	1.46	6.34	32.80	1.72	7.47	17.72
3	1.52	6.63	43.27	1.06	4.61	37.41	1.64	7.12	24.84
4	1.39	6.04	49.31	0.97	4.21	41.62	1.54	6.70	31.54
5	1.13	4.91	54.22	0.63	2.72	44.34	1.53	6.67	38.21
6	1.10	4.79	59.00	0.60	2.60	46.94	1.39	6.04	44.25
7	1.01	4.38	63.39	0.51	2.22	49.16	1.13	4.91	49.16
8	0.90	3.91	67.30						
9	0.86	3.72	71.02						
10	0.77	3.33	74.35						
11	0.75	3.24	77.60						

Note: \*Seven dimensions emerged explaining 49% of variance (Complete table in Appendix C2)

Table 9. Names and Reliability of New Dimensions

Factor	Emergent dimension name	Number of statements	Chronbach's alpha (>0.6)	Inter-item correlation (>0.3)
1	Empathy	6	0.8	0.4
2	Patient-centeredness	4	0.7	0.4
3	Technical ability	2	0.8	0.7
4	Reassurance	3	0.6	0.4
5	Waiting time	2	0.7	0.5
6	Infrastructure	4	0.5	0.2
7	Urgency	2	0.7	0.5

Table 10. Reliability of Original SERVQUAL Dimensions

<b>Original Dimension</b>	<b>Number of statements</b>	<b>Cronbach's alpha (&gt;0.6)</b>
Tangibles	4	0.5
Reliability	5	0.7
Responsiveness	4	0.7
Assurance	6	0.8
Empathy	4	0.7

Table 11 summarizes the conceptual emphasis placed on each new dimension as derived from the statement groupings per factor. Two of the factors (factor 1 and factor 6) present similar characteristics to dimensions offered in the original dimensions. The new Empathy dimension includes all the statements associated with Empathy in the original dimension scale as well as two statements from the original Responsiveness dimension. Therefore the main emphasis of this dimension is caring nature and the demonstration of sincere concern for patients' needs.

Table 11. Conceptual Emphasis of Emergent Dimensions

<b>Emergent Dimensions</b>	<b>Main emphasis</b>
Empathy (Factor 1)	Caring, attentive and show a concern for patients' needs
Patient-centeredness (Factor 2)	Respectful, focused attention to patient and build rapport with individual
Technical ability (Factor 3)	Staff is knowledgeable, dependable and possess good medical skills
Reassurance (Factor 4)	Patients want to understand treatment given, feel secure and safe and believe staff have best interest at heart
Waiting time (Factor 5)	Duration of waiting time until service delivered
Infrastructure (Factor 6)	Both organizational and physical structure; modern equipment, neat and clean surroundings including staff, efficient service delivery processes
Urgency (Factor 7)	Fast service should a need to resolve ailments as quickly and efficiently as possible

The Tangibles statements make a prominent appearance in the new Infrastructure dimension. The inclusion of statement nine enhances this dimension by including organizational structural (service delivery) elements to the previously solely physical elements. Patient-centeredness focusses on the interpersonal relationship between providers and patients. There is also an aspect of assurance within the environment which builds trust in professional decision-making.



Factor three, named Technical ability, places importance on the knowledge and skills possessed by their service providers; while the Reassurance dimension indicates patients' desire to be informed on procedures which aid feelings of safety and trust. The fifth emergent factor, Waiting time, shows that instead of being placed in a generic dimension for service time or Responsiveness, the time spent waiting for appointments and admission are assessed as an important, separate factor. The Urgency dimension is comprised of statements which emphasize the need for speedy and efficient services which resolve ailments timeously.

### **2.6.3 Hypothesis Testing**

The first two hypotheses of this thesis relates to whether there is a significant difference between the expected and perceived level of service quality in South African public hospitals. The testing method which will be used will be paired t-tests. The t-test was carried out to compare the means and confirm  $H_1$  and  $H_0$  for hypothesis 1 and 2. Thus will assess the difference for each dimension (as revealed through exploratory factor analysis) as well as for the overall service quality score.

### **2.6.4 Regression Analysis**

A regressions analysis examines the relationship between the dependent (in this case, satisfaction) and the independent variable (in this case all revealed dimensions) which will best predict the value of the said dependent variable. This analysis will estimate the coefficients of this predictive linear equation involving one or more of the independent variables thereby assessing hypothesis 3.

All variables must pass the tolerance criteria at a tolerance level of 0.0001. Any variable which causes the tolerance of another variable to fall below this criteria will be dropped.

Regression coefficient: Estimates shows regression coefficient B, SE of B, standardized coefficient of beta, t value of B and significance level of t. Confidence intervals displays 95% confidence intervals for each regressions coefficient

Model fit: Goodness-of-fit statistics included here are: multiple R,  $R^2$ , and adjusted  $R^2$  as well as SEE and ANOVA table.

R squared change is the  $R^2$  statistics that is produced by adding or removing an independent variable. If this variable is large, it can be inferred that it is a good predictor of the dependent variable.

### 3 RESULTS

#### 3.1 Description of Sample and Facility Usage

This study analyzed responses from 201 participants who met all inclusion criteria and did not fall under any exclusion criteria. Table 12 shows the distribution of the sample which was 41% male and 59% female with the most prevalent age group being 26-40 (56%) and the least frequent being 18-25 (9%).

Table 12 also indicates the regional distribution of participants with the highest prevalence being in the Western Cape (80%). The population of this study covered a broad range of the South African population. The participants represent six out of the nine provinces, including the top two most populated provinces (KwaZulu Natal and Gauteng) as well as the two provinces who contribute the most to national GDP (Western Cape and Gauteng) and the one which contributes the least (Eastern Cape).

Table 12. Demographic Descriptive Statistics

<b>Total population</b>	201	
<b>Gender (%)</b>	Male	41
	Female	59
<b>Age (%)</b>	18-25	9
	26-40	56
	41-60	24
	>60	11
<b>Region (%)</b>	Western Cape	80
	Eastern Cape	17
	Gauteng	17
	KwaZulu Natal	3
	Free State	1
	North West	1

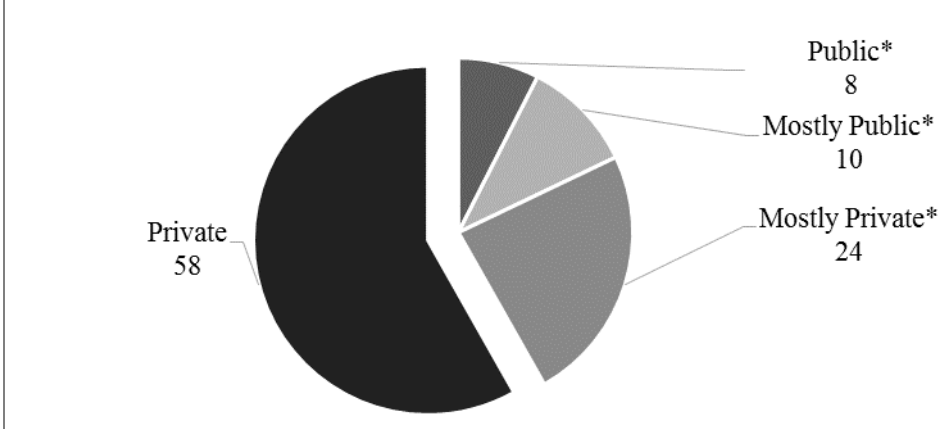
The sample also represents a mix of facility usage. With some indicating use of predominantly either public or private healthcare facilities. Assessing this information, as is relevant to this study, we can ascertain that 42% of the sample use public facilities either exclusively or occasionally and the rest (58%) using predominantly private healthcare facilities (see Note: \*42% of the sample have used public facilities.

).

The opinions of expectations and perceptions on service quality also covers a range of public and private facility users (Figure 7). Approximately 40% of the respondents have used public facilities. Most of the respondents (68%) indicate that their perceptions are

formed through secondary sources with 60% using personal experience to form opinions and 30% indicated an influence from media.

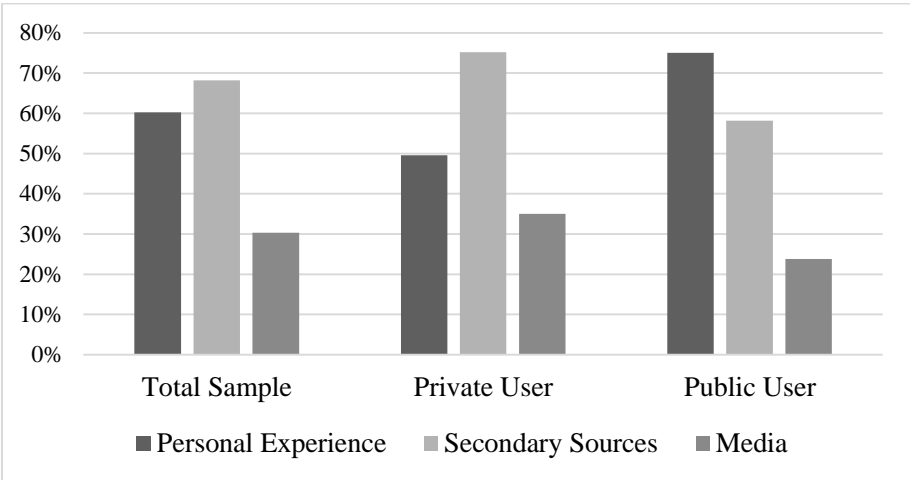
Figure 6. Facility Usage (%)



Note: \*42% of the sample have used public facilities.

When assessed separately, the most common influencer of perception of public healthcare differ between the users of public facilities and those who use predominantly private facilities. It is interesting to note that 50% of the of the private facility users indicate some personal experience of the public healthcare system and 75% of them indicated that their perception is formed by the experiences of family and friends this justifies keeping this portion of the sample in the data set.

Figure 7. Influencers of Perception on Public Healthcare Facilities (%)



### 3.2 Analysis of SERVQUAL Survey

#### 3.2.1 SERVQUAL Statements

The mean scores for individual SERVQUAL statements are represented in

Table 13. The mean score for the expectations in all dimensions ranged between 6.06 and 6.96. In terms of the perception, the mean score ranged from 3.09 to 5.24. For each pair of statements, the gap between the perception and expectation was calculated as indicated in equation (2).

$$Q \text{ (SERVQUAL SCORE)} = (P) \text{ Perception} - (E) \text{ Expectation} \quad (2)$$

Table 13 indicates the mean scores for each statement in the SERVQUAL questionnaire for both expectations and perceptions as well as the computed SERVQUAL score. The SERVQUAL statements revealed informative findings with regard to patient perceptions. The mean score for all expectation statements is 6.61 (maximum score is 7-see

Table 13) with the lowest expectation remaining above the threshold rating of 'six'. This indicates that generally, quality expectations are relatively high throughout the population. The average perceived service quality score of 3.98 is slightly below the 'neutral' threshold of a value of four indicating a less than favorable assessment of the quality of service provided at public facilities.

The five highest and lowest means per statement are displayed in Table 14. The highest mean score for the expectation score (6.96) was for statement 2 which states that cleanliness and hygiene should be excellent. The lowest mean for expectations (6.06) was statement 23 which refers to the convenience of hospital operating hours. With regards to the perception ratings, the highest mean score of 5.24 was given to statement 14 which highlights the perceived competence of doctors and the lowest mean (3.09) regarding waiting times for daily services (statement 14). The mean score of 5.24 (well about the neutral threshold of four), indicates a relative satisfaction with the level of technical skill displayed by practitioners. Daily waiting times received the lowest evaluation of 3.09.

When assessing the difference in perceived and expected service quality per statement (

Table 13 and Table 14), none of the subjects' evaluated expectations were met. The highest expectations come from the original Tangibles dimension and is attributed to statement 2 regarding cleanliness. Two items from the original Assurance dimension also ranked relatively high (with a mean rating of 6.94 and 6.91 with maximum rating being 7) with both statements referring to staff competence

The SERVQUAL scores, which measures the difference between expectation and perception for each statement, are all negative. Attention will now be focused on the ranking of the individual statements (Table 14). The highest expectation ratings were attributed to statements in the Infrastructure, Technical ability and Patient-centeredness factors (statements 2, 14, 15, 1 and 18), with greatest expectations being attributed to cleanliness and hygiene within the facility. The highest perceptions were related to the dimensions of Technical ability, Infrastructure, Reassurance and Urgency (statements 14, 3, 15, 7 and 5). The largest discrepancy between means was found to be at statement 14 (-3.313) which concerns waiting times for daily service with the smallest difference emerging at statement 13 (-1.702) which covers doctors' competency.

Table 13. Mean Scores for Each SERVQUAL Statement

Statement number	Statements	Perceived (mean)	Expected (mean)	SERVQUAL score (mean)
1	Hospitals should have up to date and well maintained equipment	4.11	6.85	-2.74
2	Cleanliness and hygiene in hospitals should be excellent	3.67	6.96	-3.29
3	The nurse and doctors should be clean and well groomed	4.85	6.79	-1.94
4	The patient room should be comfortable enough	3.94	6.54	-2.6
5	Excellent hospitals should provide treatment, diagnostic tests and other services in an acceptable time period	3.58	6.72	-3.14
6	When a patient has a problem, the hospital should show sincere interest to solve it	3.86	6.65	-2.79
7	Doctors should explain health conditions, diagnosis and treatment in an understandable way	4.45	6.79	-2.34
8	Nurses should explain to patients exactly when and what they are going to do	3.85	6.65	-2.81
9	If you are admitted, doctors should monitor your health status daily/regularly	4.35	6.73	-2.38
10	Doctors and nurses should respond immediately when called by patients	3.59	6.13	-2.54
11	Doctors and nurses should be willing to help patients	4.31	6.65	-2.34
12	Waiting time for admission shouldn't be longer than a week	3.59	6.44	-2.85
13	Waiting time for daily services shouldn't be longer than 45min	3.09	6.41	-3.31
14	Doctors should be competent	5.24	6.94	-1.70
15	Nurses should be skilful	4.63	6.91	-2.28
16	Patients should feel confident when receiving medical treatment	4.00	6.74	-2.74
17	Excellent hospitals should provide privacy during treatment	3.81	6.68	-2.87
18	Doctors and nurses should be respectful towards patients	3.67	6.83	-3.15
19	Doctors and nurses should have good knowledge to answer patients' questions	3.64	6.80	-3.15
20	Nurses in excellent hospitals should be caring	3.89	6.52	-2.64
21	Doctors and nurses in an excellent hospital should listen to you attentively	4.03	6.62	-2.59
22	Doctors should spend enough time with each patient	3.86	6.44	-2.58
23	Operating hours in an excellent hospital should be convenient for patients	4.12	6.06	-1.94
MEAN SCORE		3.98	6.61	-2.63



Table 14. Five Highest and Lowest Means for SERVQUAL Statements

Five highest expectations		Five lowest expectations	
Statement	Mean	Statement	Mean
2	6.96	23	6.06
14	6.94	10	6.13
15	6.91	13	6.41
1	6.85	12	6.44
18	6.83	22	6.44
Five highest perceptions		Five lowest perceptions	
Statement	Mean	Statement	Mean
14	5.24	13	3.09
3	4.85	5	3.58
15	4.63	10	3.59
7	4.45	12	3.59
5	4.35	19	3.64
Five largest differences (SERVQUAL score)		Five smallest differences (SERVQUAL score)	
Statement	Mean	Statement	Mean
13	-3.313	14	-1.701
2	-3.294	23	-1.94
19	-3.154	3	-1.94
18	-3.154	15	-2.283
5	-3.139	7	-2.338

### 3.2.2 Dimensions of Service Quality of Public Healthcare Facilities

The exploratory factor analysis revealed seven independent dimensions. These dimensions, although some resembling original SERVQUAL elements, are a mixture of these original dimensions and account for 49% of the total variance. Table 15 depicts the origins of the components of the new seven dimensions in regards to the original five. The new Empathy dimension is derived mostly from the statements pertaining to the original Empathy dimension and from two of the statements from the original Responsiveness dimensions. The Patient-centeredness dimension is made up out of four of the original six Assurance statements.

The remaining two statements comprise the Technical ability dimension. The Reassurance dimension is made up of a combination of the original Tangibility and Reliability statements, while Waiting time is made up of two of the original Responsiveness dimension statements only. The emergent dimension of Infrastructure is constituted of statements from the initial Tangibility and Reliability statements. The seventh factor, Urgency of care, is made up of two statements from the original Reliability dimension. The statement dispersal is indicated in table in the Table 7.

Table 15. Origins and Descriptions of New Dimensions

<b>Factor (new dimensions)</b>	<b>Original elements of SERVQUAL (number of statements included)</b>	<b>Statement number</b>
Empathy (Factor 1)	Empathy (4) Responsiveness (2)	20, 21, 22, 23, 10, 11
Patient-centeredness (Factor 2)	Assurance (4)	16, 17, 18, 19
Technical ability (Factor 3)	Assurance (2)	14, 15
Reassurance (Factor 4)	Tangibility (1) Reliability (2)	4 7, 8
Waiting time (Factor 5)	Responsiveness (2)	12, 13
Infrastructure (Factor 6)	Tangibility (3) Reliability (1)	1, 2, 3 9
Urgency (Factor 7)	Reliability (2)	5, 6

The mean values for each dimension as defined in this study, is indicated in Table 16 and ranked from highest to lowest in terms of perception and expectations of a public healthcare facility and from smallest to largest discrepancy with regards to the SERVQUAL scores. Technical ability and Infrastructure both rank as having the highest expectation and perception score.

Patients had the highest expectation (6.93- see Table 16) from the Technical ability dimension which covers both nurses' skill and doctor's competence. This shows that the patients hold medical skills especially critical in the overall services provided within a healthcare facility. The perceived service quality in this dimension as well as the SERVQUAL score was also ranked the highest (SERVQUAL score with the smallest difference). Thus this dimension meets patient expectations the closest of all dimensions but still, with a negative score of -2, the perception is less than is desired.

Infrastructure was also highly valued in terms of expectations of services with a mean value of 6.83. The tangible aspects (modern equipment as well as hygiene and cleanliness) were rated much higher than the statement related to organizational structure. The ranked perceptions were also amongst the highest and, with a mean score of greater than 4 (Table 16), showed a general satisfaction with this dimension. This shows that the environment which the hospital has is both deemed very important to patients and has a higher than average perceived quality of service.

The lowest ranked expectations are Waiting time (6.42) and Empathy (6.41). With the highest possible rating being seven, it is evident that all expectations are rated relatively high on the scale since the means are all greater than six.

The dimensions which are perceived with lowest in terms of service quality are Urgency of care (3.72) and Waiting time (3.34). Both of these means are below the neutral threshold of four indicating a low level of perceived service quality. The smallest difference in expectations and perceptions (SERVQUAL scores) are attributed to Technical ability (-2) and Empathy (-2.44) with the largest gaps in the dimensions of Waiting time (3.08) and Patient-centeredness (-2.98).

Table 16. New Dimensions Ranked According to Mean Scores

Ranked expectations			Ranked perceptions		
	Dimension	Mean		Dimension	Mean
1	Technical ability	6.93	1	Technical ability	4.93
2	Infrastructure	6.83	2	Infrastructure	4.244
3	Patient-centeredness	6.76	3	Reassurance	4.08
4	Urgency	6.68	4	Empathy	3.97
5	Reassurance	6.66	5	Patient-centeredness	3.78
6	Waiting time	6.42	6	Urgency	3.72
7	Empathy	6.41	7	Waiting time	3.34

Ranked SERVQUAL score		
	Dimension	Mean
1	Technical ability	-2
2	Empathy	-2.44
3	Reassurance	-2.58
4	Infrastructure	-2.59
5	Urgency	-2.97
6	Patient-centeredness	-2.98
7	Waiting time	-3.08

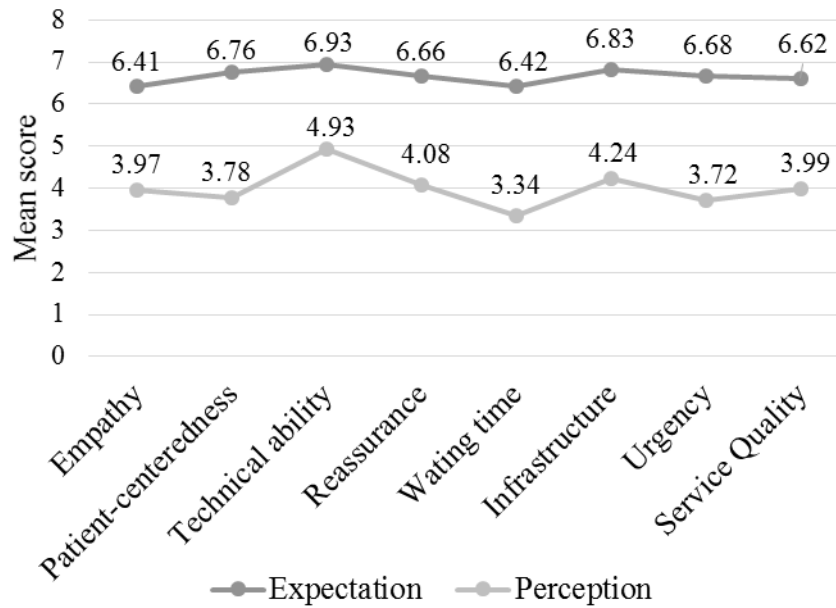
### 3.2.3 Hypothesis testing

#### 3.2.3.1 Strength and significance of differences

As in the above assessment of individual items, all SERVQUAL scores indicate that expectations of the sample are not being met in the dimensions of service quality. Overall, the mean perception score of 3.99 does not meet the expected level of service of quality (6.62). This is evident in the SERVQUAL score of -2.63.

Normal Q-Q Plot Figure 8 illustrates the means of expectations and perceptions in terms of the seven dimensions of service quality as well as overall service quality. The difference between these scores will be assessed through a paired sample t-test to determine whether they are significant or not- as outlined in hypothesis one and two of this study. The largest gap between consecutive dimensions for expectations is between Reassurance and Waiting time. While the largest difference between dimensions within the perception scores is between the Technical ability and Infrastructure dimensions.

Figure 8. Comparison of Mean Scores



Before applying the paired t-test the assumptions regarding normality and independence of observations will be tested. Normality was checked with Q-Q plots for both expected and perceived values (Appendix C3). This plot shows that both variables are normally distributed. The Durbin-Watson coefficient was 1.9 (it should be between 1.5 and 2.5 for independent observation) which meets this assumptions required for paired sample t-test.

The mean difference for each statement as well as for each of the new dimensions have already been established. Therefore, following the t-test the next step will be to determine the significance of these differences as well as the effect size. The effect size quantifies the size of the difference between the two groups, that is, the difference between expected and perceived scores (Coe, 2002). The effect size indicates whether the observed difference is meaningful. The effect size is calculated as described in equation (3).

$$r (\text{effect size}) = \frac{t^2}{t^2 + df} \quad (3)$$

\*where 't' is the t-value and 'df' is the degrees of freedom obtained from t-test (Table 17)

This data is then interpreted as indicated below (Cohen, 1988):

r = 0.1-0.3 indicates a small effect.

r = 0.3-0.5 indicates a middle effect.

r > 0.6 indicates a large effect.

The t-test was carried out to compare the means and confirm H<sub>1</sub> and reject H<sub>0</sub> for both hypothesis 1 and 2. From the data presented in Table 17 (see Appendix D for complete t-

test results and box-and-whisker plot of SEM), it can be concluded that there is a statistically significant difference between all seven dimensions ( $p < 0.001$ ) with each difference having a large difference (effect size). The effect size is greatest for Patient-centeredness, Infrastructure and Urgency with the smallest difference being (in descending order) Waiting time, Technical ability, Reassurance and Empathy.

Table 17. Results for Paired Samples t-test

	Paired Differences			t	df	Significance	Effect size
	Mean	Std. Deviation	SEM				
Empathy	2.44	1.55	0.11	22.37	200	0.00	0.71
Patient-centeredness	2.98	1.68	0.12	25.09	200	0.00	0.76
Technical ability	1.99	1.34	0.09	21.08	200	0.00	0.69
Infrastructure	2.58	1.65	0.12	22.19	200	0.00	0.73
Waiting time	3.08	2.10	0.15	20.82	200	0.00	0.68
Reassurance	2.59	1.59	0.11	23.05	200	0.00	0.71
Urgency	2.97	1.82	0.13	23.06	200	0.00	0.73
Overall Quality	2.64	1.42	0.10	26.33	200	0.00	0.78

The mean difference between expectation and perception scores for **overall** service quality is 2.6 with a standard deviation of 1.4. The test result shows that this difference is significant ( $p < 0.001$ ) and the effect size of 0.78 is assessed as large (Table 17). Thus hypothesis one is supported.

The mean difference between expectation and perception scores for the ‘**empathy**’ (pair 1 above) dimension is -2.4 with a standard error of the mean (SEM) of 0.11 (Table 17). The test result shows that this difference is significant ( $p < 0.001$ ) and the effect size of 0.71 is assessed as large.

The mean difference between expectation and perception scores for the ‘dimension is 2.97 with a SEM of 0.12 (in Table 17). The test result shows that this difference is significant ( $p < 0.001$ ) and the effect size of 0.76 is assessed as large.

The mean difference in ‘**technical ability**’ scores is -1.99 with a SEM of 0.09. The standard deviation indicates that of all the dimensions, participants are in the most agreement with regards to this SERVQUAL score (Table 17). This test also shows a statistically significant difference ( $p < 0.001$ ) in the mean expectation and perception score. The calculation of the effect size reveals a score of 0.69 which also shows there is a large effect size.

The mean difference in **'infrastructure'** scores is 2.6 with a SEM of 0.12. This test also shows a statistically significant ( $p < 0.001$ ) difference in the mean expectation and perception score (Table 17). The calculation of the effect size reveals a score of 0.73 which also shows there is a large effect size.

The mean difference between expectation and perception scores for the **'waiting time'** dimension is 3.1 with a SEM of 0.15 (Table 17). The test result shows that this difference is significant and the effect size of 0.68 is assessed as large.

The mean difference in **'reassurance'** scores is 2.6 with a SEM of 0.11. This test also shows a statistically significant difference ( $p < 0.001$ ) in the mean expectation and perception score (Table 17). The calculation of the effect size reveals a score of 0.71 which also shows there is a large effect size.

The mean difference between expectation and perception scores for the **'urgency'** dimension (represented in Table 17) is 2.97 with a SEM of 0.13. The test result shows that this difference is significant ( $p < 0.001$ ) and the effect size of 0.73 is assessed as large.

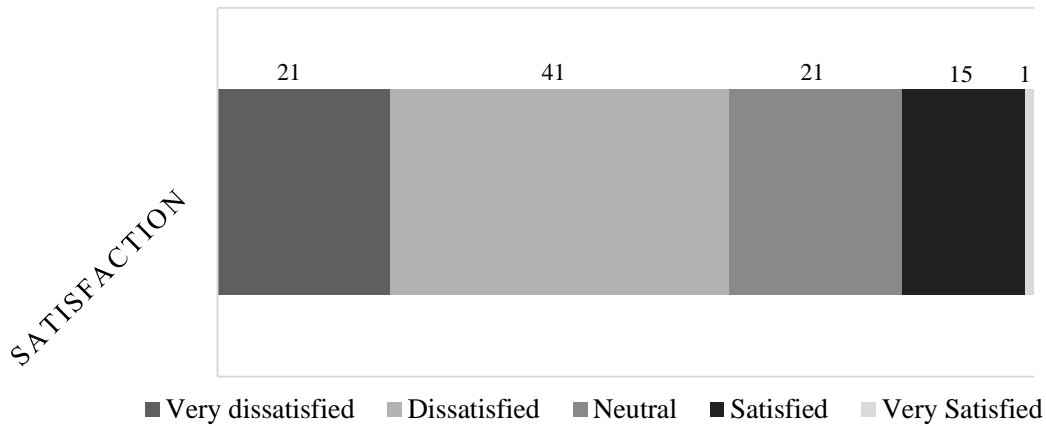
Regarding hypothesis number two, across all dimensions the alternate hypothesis is supported. Therefore indicating that there is a statistical difference between the perceptions and expectations of all dimensions.

#### 3.2.3.2 Predictors of Satisfaction

A regression analysis was conducted assess how/if the seven dimensions of quality predict satisfaction ratings. The regression used the overall satisfaction rating as the dependent variable against the seven dimensions of service quality.

The majority (62%) of the ratings for satisfaction indicated a general dissatisfaction with public healthcare facilities (see Figure 9). The rating with the highest occurrence was 'dissatisfaction' with 41% of responses and the least represented by 1% rating 'very satisfied' with only 16% expressing a level of satisfaction above neutral. The mean response for this satisfaction was 2.35 indicating that, on average, patients were dissatisfied.

Figure 9. Dispersal of Satisfaction Ratings (%)



The regression analysis was done with Forward analysis and revealed two models which predict satisfaction ratings. The ANOVA table presented (Table 18) tests the model from a statistical perspective. The regression row indicates information about the variation accounted for by the model. The residual row displays information about the variation not accounted for. The residual and regression sums of squares for the first model are about 39/61, indicating that approximately 39% of the dimension variation is explained by this model.

Using the same rationale, the second model explains 41% of dimension. Both models display significant F values ( $p < 0.001$ ). The ANOVA table (Table 18) provides useful information regarding the explanation of variance, but doesn't address the strength of that relationship.

Table 18. Results for ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	78.73	1	78.73	125.44	0.00 <sup>b</sup>
	Residual	124.9	199	.63		
	Total	203.62	200			
2	Regression	82.82	2	41.41	67.88	0.00 <sup>c</sup>
	Residual	120.80	198	.61		
	Total	203.62	200			

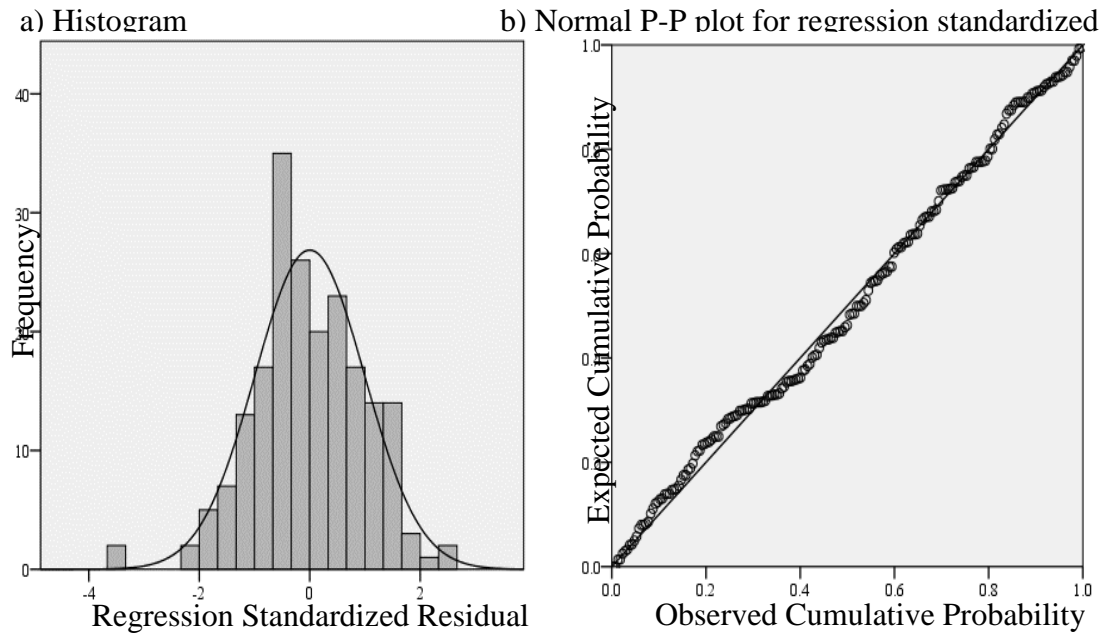
Note: \* a. Dependent Variable: Satisfaction

b. Predictors: (Constant), PeF2

c. Predictors: (Constant), PeF2, PeF1

The residual values indicate the difference between the observed and model-predicted values of satisfaction (the dependent variable) and is observed in the error term for that dimension. The histogram and P-P plot for the residuals control for the assumption of normality for this term. The histogram is acceptably close to and approximately follows the shape of the normal curve and the residuals follow the 45-degree line indicated in the P-P plot. Thus, as can be seen in Figure 10, neither of these indicates a violation of this

Figure 10. Tests for Assumption of Normality;



assumption.

The model summary table (Table 19) reports on the relationship between the dependent variable (satisfaction) and the model. The large R value indicates that the relationship is strong for both models however the R square value shows that the second model explains more variation than the first model (40.7% versus 38.7%). This is why the second model will be accepted as the best predictor of satisfaction ratings.

Table 19. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.62 <sup>a</sup>	0.39	0.38	0.79
2	0.63 <sup>b</sup>	0.41	0.40	0.78

Note: \* a. Predictors: (Constant), PeF2

b. Predictors: (Constant), PeF2, PeF1

Dependent Variable: Satisfaction



Table 20. Coefficients of Predictive Variables for Model 2

Model 2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.640	0.16	-	3.98	0.00
Patient-centeredness	0.245	0.07	0.385	3.61	0.00
Empathy	0.195	0.08	0.276	2.59	0.01

Note: \*a. Dependent Variable: Satisfaction

The second model contains two, statistically significant ( $p < 0.05$ ) dimensions namely 'Patient-centeredness' and 'Empathy' (

Table 20). The relative importance of the predictors is identified by the standardized coefficients. Thus Patient-centeredness with the highest standardized coefficient and lowest significance, is the best predictor. Equation (4) explains the relationship between quality dimensions and satisfaction determined through this study:

$$\text{Satisfaction} = 0.648 + 0.385(\text{Patient-centeredness}) + 0.276(\text{Empathy}) \quad (4)$$

Equation (4) implies that if Patient-centeredness increases for 1% then the satisfaction will increase for 38.5% *ceteris paribus*. Similarly, if Empathy increases by 1% then satisfaction will increase by 27.6% *ceteris paribus*.

## 4 DISCUSSION

The South African healthcare system has undergone many changes over the last decade. This is as a result of the combined effect of strategies to counteract the legacy of Apartheid, an increase in communicable diseases as well as trying to meet the Millennium Development Goals (RSA, 1995; UNDP, 2013).

Apartheid drove inequality between races, regions and resources in South Africa. During this time public healthcare in ‘non-white’ areas designed to service ‘non-white’ citizens were of inferior quality and lacked certain resources. Often these facilities were understaffed and offered a poor level of service. Since the abolishment of Apartheid in 1991, strides have been taken to improve these facilities and uplift all healthcare institutions. Unfortunately, 20 years later, progress remains slow and unequal between urban and rural facilities and previously ‘white’ and ‘non-white’ facilities (Kaseje, 2006). With even developed countries struggling with the effect of urbanization and integrating modern technology into healthcare (The World Bank Group, 2013), the South African healthcare system finds itself in constant pursuit to not only *catch-up* but *keep-up* as well.

South Africa has the added pressure of what has been coined a ‘quadruple burden of disease’ on its healthcare system. This set of high priority concerns includes a high prevalence of non-communicable disease, increased incidence of maternal and child mortality, violence and injuries and is dominated by of the highest incidence of Tuberculosis and HIV/AIDS (Coovadia et al., 2009; NDoH, 2012).

Dissatisfaction and distrust in the current healthcare system is impeding the effectiveness of treatment and thus poses an additional obstacle to healthcare delivery. In fact, numerous studies have shown that dissatisfaction in healthcare services lead to poor treatment adherence and reluctance to use these services (Fan et al., 2005; Freed et al., 1998). This problem is further compounded when, as a result of poor service from healthcare centers, poorer patients prefer to consult traditional healers (Nxumalo, Alaba, Cherisch, Goudge, & Harris, 2011) - who are not medically trained - who provide care for communicable disease such as HIV/AIDS and TB. These healers usually satisfy certain needs expressed by patients, even if only cultural needs, thereby building rapport with individuals in a

community. If the perception of healthcare is not addressed and satisfaction levels not improved upon, the investment into healthcare will slow little result since fewer of the most needy patients would seek professional medical attention.

Very limited research is available on quality perceptions and patient satisfaction in the public healthcare setting in South Africa. Current goals, strategies and frameworks are based solely on tangible performance measures and do not assess the importance nor impression of these parameters on patients (DoPM, 2013). Mostly objective factors are measured and subjective perceptions are not considered *e.g.* waiting time versus perceived waiting time and medical outcomes versus service satisfaction. While these objective parameters are important to assess, subjective opinions on quality and satisfaction ratings have also shown to provide unique insight and have significant impact on health status and treatment adherence.

This study investigated the differences between patient expectations and perceptions regarding service quality. In addition to this aim, the research conducted sought to understand the underlying contributors (relating to quality) to overall satisfaction with healthcare services in the selected population.

Table 12 indicates that almost two-thirds of the population assessed were female with most of the respondents being between the ages of 26 and 40 years old followed by the 41-60 year age group. The sample covered six of the nine provinces. The most represented provinces, the Western Cape (80%), Eastern Cape (17%) and Gauteng provinces hold significance regarding service delivery. These provinces reported more service delivery protests than any of the other provinces in South Africa (Turok, 2010). Therefore, the results of this study is especially pertinent since it assesses the perceived level of quality and satisfaction in regions which indicate low levels of satisfaction and thus provide insight on how to improve this parameter.

Although the aim of this study was not to establish demographic factors affecting service quality, the demographics were considered in order to provide background information on the nature of the participants of the study. There are many variables within the South African population which may form perceptions. One of the most prominent would be the psychological legacy of the Apartheid regime where standards of living and services were by design significantly lower in certain population groups. These latter disadvantaged groups were not in a situation where human rights demands for improved services would be attended to and were thus forced to 'accept' them. Through not knowing better, these lesser conditions were mainly accepted by them (Moodley & Adam, 2000).

The results of the study show that there are seven dimensions underlying overall service quality. It was also determined that there are significant differences between the perceived and expected service quality for all dimensions. While significant differences between perceived and expectant service quality were found, the effect size also shows that this

difference is also substantively important. The findings also suggest relationships between dimensions of service.

Further analysis was conducted on where the participants of the study receive their primary healthcare from in order to ascertain the formation of the opinions expressed. This was done by determining whether respondents have experience using public facilities as well as the recognized influences of perception (Note: \*42% of the sample have used public facilities.

). Just more than 40% of participants use public facilities with the remainder solely using private healthcare facilities. More than half of all participants (60%) indicate drawing on personal experience with majority of participants (68%) indicating being influenced by secondary sources.

Of those participants who solely use private facilities, three-quarters indicate using the experiences of friends and family to form their perceptions and half admitting personal experience (Note: \*42% of the sample have used public facilities.

). Thus, even though the perception of all users (public and private) are applicable, the sources of perception formation indicates that opinions are valid and useful for analysis in this study.

Interestingly, not all public users indicate personal experience with public healthcare facilities being an influencer. As indicated in Note: \*42% of the sample have used public facilities.

and Figure 7, only 75% of participants recognized their own experience as having an impact on their evaluation of public healthcare facilities. This could indicate that participants in fact, value the opinion of their social-circle or media reports more than their own.

Further research can be conducted to investigate the effect of race, socio-economic background and urban versus rural differences on quality and satisfaction ratings. However, this study aimed to determine general quality perceptions throughout the population and the drivers of service satisfaction. Therefore demographics such as race and income level were not taken into consideration.

#### **4.1 General Findings and Interpretation of Results of Study**

This thesis was based on the premise that there are five dimensions of service quality as per Parasuraman et al. (1988). Once an exploratory factor analysis was conducted, a seven dimension model emerged. This seven dimension emergent model explains 49% of the variance of the data and received high alpha scores for reliability. Upon further investigation it was ascertained that the original quality dimensions (Tangibles, Reliability, Responsiveness, Assurance and Empathy) received high alpha scores for reliability as well (

Table 10), which would attest for the validity of the original factors/dimensions. However, a factor analysis limited to a fixed number of factors (five) did not factor statements into these theoretical dimensions and so further analysis was based on the recently developed seven factor model.

The factors which emerged have shared qualities with dimensions revealed in previous literature where the SERVQUAL questionnaire was also used as a tool to measure quality (Anderson et al., 2001; Attree, 2001; Infante et al., 2004; Parasuraman et al., 1988; Salia et al., 2008; Sofaer & Gruman, 2003; Tam, 2007). Table 21 indicates the overlap in dimension characteristics with other research studies in service quality.

The dimensions referred to below (Table 21) shared similar groupings of quality statements (the emergent dimensions of these studies have been outlined in **Error! Reference source not found.**). The fact that similar groupings of statements occur across nationalities of developing and developed countries confirm the validity of this tool as well as the appropriateness and usefulness thereof.

Table 21. Overlap of Alternate Dimensions Underlying Service Quality

<b>Emergent Dimensions</b>	<b>Literature in alignment with dimension description (dimensions outlined in Error! Reference source not found.)</b>
Empathy	Infante et al., 2004; Parasuraman et al., 1988
Patient-centeredness	Anderson et al., 2001; Attree, 2001; Infante et al., 2004; Sofaer & Gruman, 2003; Tam, 2007
Technical ability	Anderson et al., 2001; Infante et al., 2004; Sofaer & Gruman, 2003; Tam, 2007
Reassurance	Anderson et al., 2001; Attree, 2001; Salia et al., 2008; Sofaer & Gruman, 2003
Waiting time	Salia et al. 2008; Tam, 2007
Infrastructure	Anderson et al., 2001; Infante et al., 2004; Sofaer & Gruman, 2003; Tam, 2007
Urgency	Sofaer & Gruman, 2003

The most informative results regarding the emergent dimensions include the SERVQUAL score and the statistical difference between expectations and perceptions for all dimensions. The SERVQUAL score is the mean difference for each dimension (perception minus expectation). Since the SERVQUAL scores hold potentially valuable information, it was thus important to determine whether these differences were statistically large enough to comment on.

Since all SERVQUAL scores (for each dimension as well as overall quality scores) were proven to be both statistically significant and to have a significantly large effect size (Table 17), it warrants further consideration.

The emergence of Infrastructure and Assurance as prominent dimensions (in both expectations and perceptions), is not surprising since research has indicated hygiene and technical skills as imperative to positive healthcare perception (Andaleeb, 2001; Kelley & Hurst, 2006). The lowest expectation, regarding statements, highlights the importance of convenient office hours. With a rating of 6.06, this still a high rating and should be assessed as such.

Dissatisfactory waiting times are prevalent in developing countries. This element is highlighted in that waiting time for daily services received the lowest perceived evaluation. This deficit is often occurs in regions where services, resources and administrative coordination are often not well established (Akter et al., 2008; Smith & Engelbrecht, 2001). The competence of doctors and appearance of medical staff being were valued the highest and reflected a pleasing assessment of clinical care.

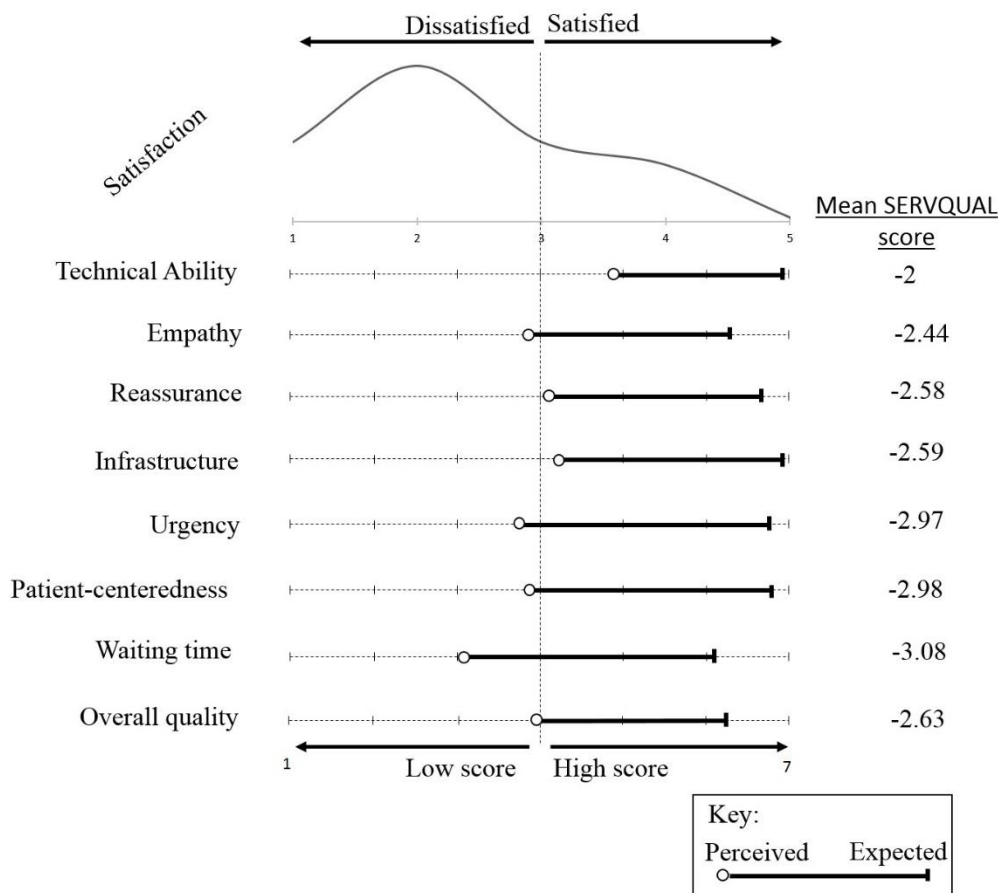
These dimensions were also prominently represented when assessing the rank of SERVQUAL scores (mean differences). Daily waiting times had the greatest perceived gap and the competence of doctors showed the smallest difference between the expected and perceived ratings.

## **4.2 Significance of Research for Stakeholders**

The results of this study can be applied in varying instances. These extend from providing a framework for healthcare strategies on a national and provincial level to assisting hospital managers in providing excellent, holistic healthcare service in their facilities. This section will endeavor to highlight the contributions to literature and practical applications of the findings of the study.

Figure 11 summarizes the findings for each of the emergent dimensions as well as the overall service quality ratings. The distribution of the satisfaction scores are also illustrated in this figure, showing the majority of respondents being dissatisfied with the current quality of care. Most of the perceived scores indicate a score below the neutral response of 4. The low perception rates and dissatisfaction is further echoed in the significantly large discrepancies evident in the SERVQUAL scores where none of the expectations are met. The significance of the emergent dimensions will be elaborated on below. The interpretation of these findings will be discussed in terms of the relevant contribution each dimension will provide to both hospital management and government department strategies.

Figure 11. Summary of Data Collected per Dimension and Satisfaction Ratings



Note: \*The vertical dotted line indicating a neutral response

## 4.2.1 Dimensions Which Have Implications for Governmental Healthcare Strategies

### 4.2.1.1 Technical Ability

This dimension is common in a number other studies investigating underlying factors of service qualities (Anderson et al., 2001; Sofaer & Firminger, 2005; Tam, 2007). The participants of this study expressed a desire for technically knowledgeable and competent medical staff. Literature has suggested that Technical ability be considered separately since it is evident that overall quality is divided into two domains, namely Technical and Interpersonal quality (Chang, Hays, MacLean, Reuben, Shekelle, Solomon, & Wenger, 2006). Thus it is appropriate that Technical ability emerged as a separate factor in this study.

Patients had the highest expectation from the Technical ability dimension which covers both nurses' skill and doctors' competence. This shows that the patients hold medical skills especially critical in the overall services provided within a healthcare facility. The perceived service quality in this dimension as well as the SERVQUAL score was also ranked the highest. Therefore, while this dimension scores the best amongst others in this

study, it is important to note that patients still perceive there to be a significant deficit in this parameter.

#### 4.2.1.2 Infrastructure

Patients valued the Infrastructure dimension highly in terms of expectations of services. It is interesting to note that tangible infrastructure was rated much higher than the statement pertaining to organizational structure and processes. The high rankings of this dimensions (perceptions and expectations above the neutral score of 4) indicates a general satisfaction with this dimension (*Figure 11*).

The expectation for this dimension is well aligned with point four and six of the South African NDoH's ten Point Plan (NDoH, 2010) which highlights the revitalization of infrastructure and improvement of system processes. The implementation of new eHealth processes will also improve facilities and organizational procedures (DoH, 2013a). The eHealth strategy aims to incorporate information and communication technologies in the daily tasks in hospitals, for example, treat patients, track disease and pursue research and would this form an integral part of service delivery (DoH, 2012). It is thus evident that, hospitals should continue plans for further investment in environmental infrastructure and well as organizational process.

### **4.2.2 Dimensions Which Have Implications for Hospital Management**

#### 4.2.2.1 Patient-centeredness

Patient-centeredness, which refers mostly to interpersonal interaction between medical staff and patients, shows of the greatest discrepancies between expectations and evaluations. This perception is especially concerning since this is evaluated as the third most important dimension with regards to evaluating service quality. This dimension which is cited in many other studies (Infante et al., 2004; Sofaer & Gruman, 2003; Tam, 2007) as important in building rapport with patients and thus creating a professional environment of trust and belief that the doctor has the patients best interest at heart. It has been shown that when such rapport is established that it further improves treatment adherence resulting in better medical care (Rathert et al., 2012).

#### 4.2.2.2 Urgency of Care

The dimension regarding Urgency of care also ranks highly on expectations of care. This dimension is dominated by the speed of services rendered and an expressed earnestness in treating illness. This dimension has the third largest SERVQUAL score which indicates that patients do not believe that the service they are receiving is efficient and may decrease the trust in using public facilities. If patients are not ensured that they are a priority, they may assume that their case is not receiving the attention they believe it deserves and seek alternate medical care (Boshoff & Gray, 2004; von Holdt & Murphy, 2006).



#### 4.2.2.3 Empathy

Empathy is the most loaded factor and it is dominated by statements pertaining to sincere care. According to the results of this study, Empathy is rated as the least important in terms of expected quality and also presents with the second lowest SERVQUAL score indicating relative fulfilment with this dimension. Empathy is an important intangible service quality and in the literature it is linked to the original dimensions of Responsiveness and shares elements of patient-centered care (US Department of Health and Human Services, 2010).

One of the statements contributing to this dimension pertains to the length of time doctors spend with patients. The duration of the consultations has been shown to have a greater positive effect on satisfaction than waiting time has a negative effect (Anderson, Balkrishnan, & Camacho, 2007).

As is indicated in *Figure 9*, the most of the participants rated their satisfaction with public health services as dissatisfactory with the mean score being reported as 2.67 (highest score possible being five). Interestingly, it can also be seen that only four out of the seven dimensions are rated with a perception of less than four (the proposed threshold for neutral). Those dimensions which have a score of greater than four include Technical ability (4.93), Reassurance (4.08) and Infrastructure (4.24) (see *Figure 11*).

From the above, it can therefore be stated that if the perceived scores were solely used as a determinant for the observed level of service quality Technical ability, Reassurance and Infrastructure would be assessed as receiving a relatively high score. This rationale has been used in some literature which take on a more Nordic perspective (Gibson, 2009). However, since this study is based on the theory of the Gap analysis, this study recognizes that the relative difference between perception and expectation has more value in determining the level of quality assessed in a given population.

### **4.2.3 Dimensions Which Have Implications for Both Hospital Management and Governmental Departments**

#### 4.2.3.1 Reassurance

Reassurance is ranked fifth highest in terms of expectations, but with a mean score of 6.7, it is still evaluated as a very important element of service quality. This dimension places large emphasis on the relevant health education of patients. Patients indicated that they value being informed on procedures and treatments as well as being informed on conditions.

Communication plays a large role in the Reassurance dimension. There are a number of factors affecting provider-patient communication which are especially pertinent in the South African context. Language barriers, racial and ethnic concordance between patient and provider and providers' cultural competency are all issues which may impact the effectiveness of communication. These barriers are regarded as so large that US

departments, for instance, have implemented short courses for health providers to improve cultural and linguistic competencies in order to improve service delivery in this regard (US Department of Health and Human Services, 2010).

South Africa presents a very unique society to work in and is often referred to as the Rainbow Nation. One of the reasons for the nickname is the fact that South Africa has 11 official languages with non-official languages such as sign language and other languages making up 2.1% - not to mention the variety of dialects (SSA, 2012). Therefore this would be an ideal society where cultural training would be valuable.

Stewart, Brown, Donner, McWhinney, Oars, Weston and Jordan (2000) have revealed a link between Patient-centered care and the communication element of this emergent Reassurance dimension; that communication plays an important role in finding common ground between patients and providers which improves recovery from their discomfort/ailments. It has also been shown that limitations in communication have a negative impact on adherence to medical recommendations (DiMatteo, 1998). Taking into consideration the importance of the implications of this dimension, it is obvious that it is in the best interest of improving the health status of the general population to decrease this SERVQUAL score, that is, decrease the discrepancy between expected and perceived service quality.

#### 4.2.3.2 Waiting time

One of the most popular alternative dimensions described in the literature *viz.* Waiting time, also makes a prominent appearance in this study. Waiting time is evaluated most poorly in perceived quality and also presents with the greatest SERVQUAL score. The waiting time for daily services is indicated as the largest contributor in this dimension. In a country with one of the highest prevalence of Drug-Resistant Tuberculosis -1% of South Africans (WHO, 2013b), this dimension should be urgently addressed to decrease potential new infections arising from extended contact with infected patients.

This result cannot be ignored by hospital management as long waiting often results in patients choosing not to be treated (Scheepers, van Dongen, Dekker, Geertzen & Dekker, 2006), can result in the perception that staff do not provide effective and quality care (Hill & Joonas, 2005). In fact Camacho et al. (2006) showed that increased waiting times also decreased willingness to return for medical treatment by about 2% per minute waited.

Extended waiting times have been attributed to a combination of heavy workloads, employee attitude and managerial problems at healthcare facilities (Pillay, Abdullahm Bakerm Ghazali, Ismail, Manaf, & Salikin, 2011). These problems should be resolved through proper organizational analysis to determine bottle-necks and other organizational obstacles in delivering timely health service.

### 4.3 The Effect of Quality on Patient Satisfaction

The results for the satisfaction indicated a general dissatisfaction in the level of service quality as indicated in *Figure 9*. The average response of 2.35 (with the maximum rating being five) further expresses this dissatisfaction. Only 16% of the participants indicate being satisfied (constituted of ratings labelled ‘satisfied’ and ‘very satisfied’) with their experience of service quality levels at public healthcare facilities.

The link between service quality (and its dimensions) and satisfaction is well documented (Cronin & Taylor, 1992; McAlexander, Kaldenberg & Koenig., 1994). As stated above, some studies have used quality perception scores as sole indicators of satisfaction (Gibson, 2009). The threshold of 80% was accepted as determining the satisfaction of patients for individual dimensions. Using this guideline, none of the emergent dimensions indicate a satisfactory result.

Table 22 indicates that the highest score received is for Technical ability dimension (70%) and the lowest performing dimension being Waiting time. These low satisfaction ratings per dimension are in agreement with the findings of the South African NDoH who indicated low compliance to benchmark standards for, amongst others, caring attitudes (represented by the emergent dimension Empathy) and Waiting time (DoH, 2013b).

Table 22. Percentage Total Satisfaction for Each Dimension (%)

Technical ability	70
Infrastructure	61
Reassurance	58
Empathy	57
Patient-centeredness	54
Urgency	53
Waiting time	48

Note: \*Threshold for satisfaction equals 80%

Upon investigation of the effect of individual dimensions on patient satisfaction, a parsimonious regression model revealed two significant factors influencing satisfaction. This model was decided on based on the strength of its ability to predict satisfaction rating. Further reason to choose this model, is that it accounts for 40.7% of the variance of reported satisfaction. Patient-centeredness and Empathy were found to significantly affect the perceived levels of satisfaction with Patient centeredness being the biggest predictor.

These results of this study are contrary to the conclusions of Grönroos (1984) who purported that functional quality was more important than technical quality. In this study it is shown that functional quality, that is, interpersonal interaction and care, is the only predictor of satisfaction. This finding supports Chang et al. (2006) who also found that

total the technical quality of their care was not associated with overall ratings of their healthcare.

More importantly, this research is in agreement to the findings of Boshoff and Gray (2004) who conducted a similar study in South Africa in 2004. The results of the study by Boshoff and Gray (2004) also indicated only two significant predictors of satisfaction: Empathy and Assurance. These dimension are very similar, in terms of underlying statements, as the emergent dimensions of Empathy and Patient-centered care in the current study.

With regards to the results obtained in the current study, the strongest predictor of patient satisfaction was Patient-centeredness. The link between Patient-centered care and satisfaction has also been corroborated by findings by Rathert et al. (2012). Extensions of this dimension have also been associated with dimensions which are positively significantly related to patient satisfaction (Tam, 2007).

Patient-centered care has shown to contribute to more than just satisfaction ratings but as also been shown to independently aid the control of chronic disease (Epstein, Campbell, Fiscella, Franks, Melsrum, Miller, & Sheilds, 2005; Mead & Bower, 2002; Swenson, Buell, Lo, Ruston, White, & Zettler 2002;). Thus taking this aspect of service quality into consideration in hospital management, shows great promise in positively affecting patient ailments.

Interestingly the dimension of Empathy was rated as the lowest of expected quality levels (6.41) and was also ranked as having the second smallest SERVQUAL score of -2.44 (Table 16) and thus one would not expect it to play such a significant role in determining satisfaction ratings in this study. However, this result is of great value since it provides insight into how to improve satisfaction ratings. By addressing this significantly large gap in perceptions and expectations public healthcare facilities can facilitate better perceived care and treatment adherence.

The inclusion of Empathy as a predictor of satisfaction has been reported in a number of studies since it appears as an original dimension in SERVQUAL models (Infante et al., 2004; Parasuraman et al., 1988; Smith & Engelbrecht, 2001). This relationship is logical since empathy caters to the fact that human beings are social creatures, and satisfies the human need for affiliation and social support. These considerations hold ‘survival value’ which is particularly relevant in healthcare (Hojat, 2007).

It is interesting to note that although Waiting time has the largest SERVQUAL score (-3.1) that it did not play a significant role as a predictor of satisfaction. Waiting time has made a prominent appearance in literature and has been positively linked to satisfaction (Camacho et al., 2006; Hill & Joonas, 2005). Results from this study, however, are aligned with the work of (Yeddula, 2012), who found no significant relationship between satisfaction and patient waiting time.

In the context of South African healthcare it is important to understand what organizational changes can be implemented to increase the probability of return of patients seeking healthcare. With the high prevalence of communicable diseases such as HIV/AIDS and TB, which require regular monitoring and sustained treatment, it is important to place emphasis on those dimensions which show to improve patient satisfaction.

The evidence presented in this study indicates that, while physical resources and infrastructure is important, intangible factors play a significant role in ensuring service satisfaction. In the General Household Survey which was conducted indicated that 3.5% of patients would prefer to travel to facilities other than the one nearest to them or consult other sources of healthcare due to 'rude or uncaring' staff (SSA, 2013a).

The satisfaction model revealed in this study, indicates a high importance being placed on patient-provider interactions. Expectations of respect, information sharing and genuine care are highlighted as significant contributors. Wiggers, Donovan, Redman and Sanson-Fisher (1990) also indicated that issues related to interpersonal relationships between patients and medical staff were by far more significant and predictive in determining levels of satisfaction. This is echoed in the work of Collier (1994) who indicated that poor assessment of quality through patients can overshadow higher levels of clinical quality.

#### **4.4 Limitations and Recommendations**

One of the limitations of this study, is that it does not take into consideration the demographical impact on perceptions. Being a country of stark contrasts (economically and culturally), it would be expected that differences in perception would vary across these differences. Taking age and race into account could indicate differences in perception as generations are concerned. That is, does the generation of 'non-whites' who used healthcare facilities during Apartheid have different expectations and/or perceptions of the current healthcare system, and what impact does this have on satisfaction? In order to counteract this misalignment of perception, the data gathering processes should be carefully considered.

The heterogeneity of the South African population demands less assumption be made when researching concepts such as quality. Because we cannot purport that all South Africans has the same level of expectation, using the gap analysis method (where individuals set their range of expectations) and not the Nordic method is more appropriate for this population. Should an expectations analysis be conducted on different races, regions and ages to produce norms for different populations, the Nordic method of only indicating perceptions could result in a faster way to collect data. However, the gap analysis method adds more value to assessment scores and is thus currently a preferred system.

This study only provided the questionnaire in English. Since English is widely spoken across South Africa a broad part of the population could be captured. However, since South Africa has 11 official languages, providing questionnaires in multiple languages

could provide further insight into the greater population and prevent poor understanding of questions resulting in inaccurate answers.

This study used a generic version of the SERVQUAL modified for hospital patients. The physical distance between South Africa and Slovenia also posed a limitation to this study since in focus groups to ensure appropriate dimension statements could not be conducted. Therefore the questions relied on a study that was conducted in South Africa using similar parameters (Boshoff & Gray, 2004). Conducting focus groups or in-depth interviews may provide a better understand on issues which patients have with public healthcare facilities. These issues may not be accounted for in the generic questionnaire and may highlight crucial themes.

Additional limitations to this study include time and distribution channel constraints imposed on data collection which may have limited the number of respondents. The fact that a convenience sample was utilized, may have resulted in conclusions which are not applicable to the general population.

Since healthcare facilities are governed on a provincial level, it would be interesting to investigate the different patient perceptions accordingly. Different regions in South Africa are dominated by different cultural norms as well, and thus could provide additional information on how best to satisfy these communities and segments of the population.

## **CONCLUSION**

Currently the South African healthcare system is overburdened with a quadruple burden of disease. With the prevalence of HIV/AIDs, maternal and infant mortality as well as Drug-Resistant TB on the rise, it is imperative to analyze all aspects of service delivery and a variety of performance measures to ensure needs and goals are being met. The state of South African healthcare requires more than just improvements in infrastructure. Healthcare system frameworks are beginning to increase the inclusion of intangible measures into strategic planning to improve service quality.

The aim of this thesis was to provide a foundation to better understand the psychological needs and perceptions of the South African population regarding the current system. Using the SERVQUAL questionnaire as the chief measurement tool, seven factors of quality emerged. The underlying statements of these factors resulted in certain qualities coming to the fore, resulting in the following names being given accordingly: Empathy, Patient-centeredness, Technical ability, Reassurance, Waiting time, Infrastructure and Urgency of care.

The dimensions which rated the highest amongst both patient perceptions and expectations were Technical ability and Infrastructure. This indicates that, relative to other dimensions, patients are satisfied with the environmental aspects as well as the clinical/medical service they are receiving. Using the SERVQUAL score to assess the gap between perceptions and

expectations, it is evident that all perceptions reported fall short of the expressed expectations. All the differences were assessed to be large and statistically significant.

The largest discrepancy between scores was found to be between the Waiting time and Patient-centeredness with Urgency of care following close behind. This shows that dimensions pertaining to the overall experience of seeking healthcare are rated very poorly.

Two dimensions namely, Patient-centeredness and Empathy were revealed as significant predictors of satisfaction with in this population. This is in alignment with previous literature (including studies conducted in South Africa) in that interpersonal-relationships form an important aspect in satisfaction rating- often above elements of technical qualities. The largest influencer of satisfaction is derived from Patient-centeredness which highlights the respectful interaction and the importance of inspired confidence. The large SERVQUAL score of the Patient- centeredness dimensions presents a starting point for satisfaction improvement.

Thus, this research gave insight into the perceptions of the public health system and also provided understanding into how to improve it. The evidence presented in this study indicates that, while physical resources and infrastructure is important, intangible factors play a significant role in ensuring service satisfaction. Taking these intangibles into account, can prove to be useful in designing effective strategies to improve healthcare service delivery.

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## **APPENDIXES**



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## Appendix A: Slovenian Summary

Zdravstveni sistem v Južni Afriki je trenutno močno obremenjen s štirimi boleznimi. Zaradi razširjenosti HIV-a/AIDS-a, stopnje smrtnosti mater in dojenčkov, ter na zdravila odporne tuberkuloze, je z vidika zadostovanja potrebam in izpolnjevanja ciljev zdravstvenega sistema pomembno analizirati vse aspekte nudenja zdravstvenih storitev in vrsto merilcev uspešnosti. Stanje zdravstvenega sistema v Južni Afriki kliče po več kot le izboljšavah v infrastrukturi. Vse več je vključevanja neoprijemljivih merilnikov v strateško planiranje z namenom izboljševanja kvalitete storitev.

Cilj te magistrske naloge je zagotoviti temelj za boljše razumevanje psiholoških potreb in percepcij med Južnoafriško populacijo znotraj obstoječega sistema. Z uporabo SERVQUAL vprašalnika kot glavnega merilnega orodja smo prišli do sedmih faktorjev, ki vplivajo na kvaliteto storitve. Ti faktorji temeljijo na konkretnih osnovnih pojmi in sicer: *empatija, osredotočenost na pacienta, tehnična sposobnost, tolažba (zagotovilo, pomirjanje), čas čakanja, infrastruktura in nujnost oskrbe.*

Dimenzije, ki so dobile najboljšo oceno glede na trenutno stanje, tako med pacientovimi percepcijami in pričakovanji, so bile tehnična sposobnost in infrastruktura. To pomeni, da so pacienti glede na ostale dimenzije relativno zadovoljni z okoljskimi aspekti kot tudi s klinično/medicinsko storitvijo, ki so jo deležni. Z uporabo SERVQUAL ocen za ugotavljanje vrzeli med percepcijo in pričakovanju postane očitno, da vse izmerjene percepcije padejo pod izražena pričakovanja. Vse vrzeli so bile znatne in statistično pomembne.

Največja razhajanja med ocenami so bile pri dimenzijah *čas čakanja* in *osredotočenost na pacienta*, čemur neposredno sledi *nujnost oskrbe*. S tem vidimo, da so dimenzije, ki se nanašajo na splošno izkušnjo zdravstvene oskrbe, ocenjene zelo slabo.

Dve dimenziji, in sicer *osredotočenost na pacienta* in *empatija*, sta bili ugotovljeni kot pomembna prediktorja zadovoljstva znotraj te populacije. To je v skladju z že obstoječo literaturo (vključno s študijami, opravljenimi v Južni Afriki), ki ugotavlja, da so medosebni odnosi pomemben aspekt pri oceni zadovoljstva - pogosto nad elementi, ki zagotavljajo tehnično kvaliteto. Največji vpliv na zadovoljstvo izhaja iz *osredotočenosti na pacienta*, kar poudarja spoštljivo interakcijo in pomembnost vzbujanja zaupanja. Visoka ocena SERVQUAL dimenzije *osredotočenost na pacienta* predstavlja izhodišče za izboljšanje zadovoljstva.

Ta raziskava tako daje vpogled v percepcije v javnem zdravstvenem sistemu in pripomore k razumevanju, kako sistem izboljšati. Dokazi, predstavljeni v tej študiji, kažejo, da so fizična sredstva in infrastruktura sicer pomembni, vendar pa neoprijemljivi faktorji igrajo znatno vlogo pri zagotavljanju zadovoljstva s storitvijo. Upoštevati te neoprijemljive faktorje se lahko izkaže kot koristno pri oblikovanju učinkovitih strategij za izboljšanje zagotavljanja zdravstvenih storitev.

## **Appendix B: Glossary and Abbreviations**

### **Glossary**

#### **Dimension**

Once factors have been presents with descriptive names, they are referred to as dimensions

#### **Factor**

The emergent statistical grouping of statements

#### **Private healthcare facility**

Those healthcare centers that are owned and run by private individuals or organizations

#### **Public healthcare facility**

Those healthcare centers that are owned or run by the government

#### **Quality**

Doing the right thing, in the right way for the right person – having the best possible results (Zineldin, 2006)

#### **Satisfaction**

The fulfillment of one's wishes, expectations or needs

#### **SERVQUAL**

A tool which measures the level of quality in the service industry (Service Quality)

#### **SERVQUAL score**

The difference between perceptions and expectations on certain dimensions as revealed by the SERVQUAL measurement tool

### **Abbreviations**

#### **WHO**

World Health Organization

#### **NDoH**

National Department of Health

#### **DoH**

Department of Health

#### **UNDP**

United Nations Development Program

#### **DoPM**

Department of Performance Management

#### **SSA**

Statistics South Africa

#### **RSA**

Republic of South Africa

## Appendix C: Measurement tool evaluation (SERVQUAL and Reliability)

### Appendix C1: Full Questionnaire

“The perceived quality of healthcare service in South African public hospitals and patient satisfaction”

What do South Africans want from public healthcare facilities?

URL: <https://www.1ka.si/a/37422>

Aimée Wesso

Thank you for participating in this study. This survey forms part of a research study under the supervision of the University of Ljubljana, Slovenia (Faculty of Economics).

The aim of this research is to assess the South African population's perception of the quality of service in public healthcare facilities as well as the most influential factors of patient satisfaction within the SERVQUAL framework.

This questionnaire will assess:

**YOUR EXPECTED QUALITY OF SERVICE FROM AN EXCELLENT HOSPITAL** (which statements are **essential** for a hospital to be considered '*excellent*')  
**versus**  
**YOUR PERCEIVED QUALITY OF SERVICE FROM A SOUTH AFRICAN PUBLIC HOSPITAL.**

PART ONE will assess your expected level of quality of service at an excellent hospital.

PART TWO will ask similar questions pertaining to your perceived quality of service as South African public hospitals.

PART THREE is important to determine your level of satisfaction with hospital quality of care and demographic information.

The entire questionnaire should not take you longer than 7min to complete.

***Your participation will be completely anonymous.***

Please direct any questions to [servqual.rsa@gmail.com](mailto:servqual.rsa@gmail.com)

**- PART ONE - EXCELLENT HOSPITALS**

**Q1 - Below is a list of points describing EXPECTED hospital services. Please indicate which statements are essential for a hospital to be considered excellent.**

Strongly disagree =not an essential feature | Strongly agree= essential feature

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Hospitals should have up to date and well maintained equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleanliness and hygiene in hospitals should be excellent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The nurses and doctors should be clean and well-groomed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The patient room should be comfortable enough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q2 - Strongly disagree =not an essential feature | Strongly agree= essential feature**

	Strongly disagree	Disagree	Somewh at disagree	Neutral	Somewh at agree	Agree	Strongly agree
Excellent hospitals should provide treatment, diagnostic tests and other services in an acceptable time period	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When a patient has a problem, the hospital should show sincere interest to solve it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors should explain health conditions, diagnosis and treatment in an understandable way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses should explain to patients exactly when and what they are going to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If you are admitted, doctors should monitor your health status regularly/daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q3 - Strongly disagree =not an essential feature | Strongly agree= essential feature**

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Doctors/nurses should respond immediately when called by patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses should be willing to help patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting time for admission shouldn't be longer than a week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting time for daily service shouldn't be longer than 45min	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## EXCELLENT

## HOSPITALS

**Q4 - Below is a list of points describing EXPECTED hospital services. Please indicate which statements are essential for a hospital to be considered excellent.**  
 Strongly disagree =not an essential feature | Strongly agree= essential feature

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Doctors should be competent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses should be skilful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Patients should feel confident when receiving medical treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excellent hospitals should provide privacy during treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses should be respectful towards patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses should have good knowledge to answer patients' questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q5- Strongly disagree =not an essential feature | Strongly agree= essential feature**

	Strongly disagree	Disagree	Somewh at disagree	Neutral	Somewh at agree	Agree	Strongly agree
Nurses in excellent hospitals should be caring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses in an excellent hospital should	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Somewh at disagree	Neutral	Somewh at agree	Agree	Strongly agree
listen to you attentively							
Doctors should spend enough time with each patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operating hours in an excellent hospital should be convenient for patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**- PART TWO- SOUTH AFRICAN PUBLIC HOSPITALS**

**Q6 - Below is a list of points describing PERCEIVED public hospital services. Please show the extent to which you perceive *SOUTH AFRICAN PUBLIC HOSPITALS* do possess the features described**

Strongly disagree=do not have feature at all | Strongly disagree = strong evidence of feature

	Strongly disagree	Disagree	Some- what disagree	Neutral	Some- what agree	Agree	Strongly agree
Public hospitals have up to date and well maintained equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cleanliness and hygiene in public hospitals are of a high standard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The nurses and doctors are clean and well-groomed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The patient room was comfortable enough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q7 - Strongly disagree=do not have feature at all | Strongly disagree = strong evidence of feature**

	Strongly disagree	Disagree	Some- what disagree	Neutral	Some- what agree	Agree	Strongly agree
Public hospitals provide treatment, diagnostic tests and other services within an acceptable time period	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I have a problem, public healthcare workers show willingness to solve it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors explain health conditions, diagnosis and treatment in an understandable way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Nurses explain exactly what they do to patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I was admitted, doctors would monitor my health status regularly/daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q8 - Strongly disagree=do not have feature at all | Strongly disagree = strong evidence of feature**

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Doctors/nurses responded immediately when I try to get their attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses are helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting time for admission is not too long/longer than a week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting time for daily services is not too long/longer than 45min	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**- NEARLY FINISHED! SOUTH AFRICAN PUBLIC HOSPITALS**

**Q9 - Below is a list of points describing PERCEIVED public hospital services. Please show the extent to which you perceive *SOUTH AFRICAN PUBLIC HOSPITALS* do possess the features described**

Strongly disagree=do not have feature at all | Strongly disagree = strong evidence of feature

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Doctors are competent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses are skilful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel confident receiving medical treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public hospitals provide privacy during treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public hospital staff is respectful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public hospital staff are able to answer all my questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q10 - Strongly disagree=do not have feature at all | Strongly disagree = strong evidence of feature**

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree
Nurses in Public hospitals are caring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors/nurses listen to me attentively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctors spend enough time checking and advising me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Operating hours of public facilities are convenient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q11 - How satisfied are you with the quality of public healthcare services**

Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**- PART 3-**

**Q12 - How do you form your perceptions of public healthcare?**

Multiple answers are possible

- Personal experience
- Secondary sources (friends' and family's experience)
- Media

**Q13 - Which healthcare facilities do you use**

- Public
- Mostly Public
- Private (Medicross, Mediclinic, Life, Melomed etc)
- Mostly Private

**Q14 - When was your last visit to a healthcare facility?**

- Less than 2 years ago
- More than 2 years ago

**Q15 - In which province do you reside?**

- Eastern Cape
- Free State



- Gauteng
- KwaZulu Natal
- Limpopo
- Mpumalanga
- Northern Cape
- North West
- Western Cape
- South African currently living abroad
- Not a South African citizen

**Q16 - Age**

- 18-25 years
- 25-40 years
- 41-60 years
- >61 years

**Q17 - Gender:**

- Male
- Female

THANK YOU FOR COMPLETING THE QUESTIONNAIRE!

- Aimée Wesso

Appendix C2:

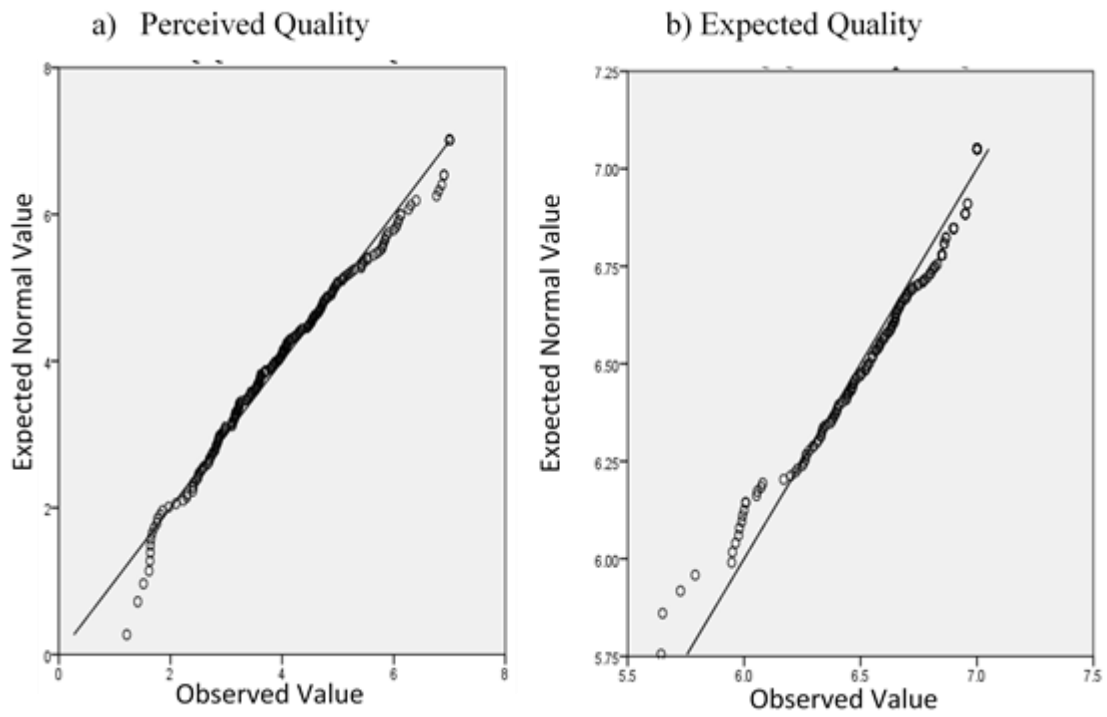
Table 1. Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.559	28.516	28.516	6.084	26.453	26.453	2.359	10.254	10.254
2	1.870	8.130	36.646	1.459	6.343	32.796	1.718	7.468	17.722
3	1.524	6.628	43.274	1.061	4.614	37.410	1.637	7.116	24.839
4	1.388	6.035	49.309	0.968	4.211	41.621	1.541	6.700	31.539
5	1.129	4.907	54.216	0.627	2.724	44.345	1.534	6.668	38.207
6	1.101	4.789	59.005	0.598	2.599	46.944	1.390	6.043	44.251
7	1.008	4.384	63.388	0.510	2.218	49.162	1.130	4.911	49.162
8	0.900	3.912	67.301						
9	0.856	3.720	71.021						
10	0.767	3.333	74.354						
11	0.746	3.244	77.599						
12	0.665	2.892	80.490						
13	0.610	2.653	83.143						
14	0.586	2.546	85.689						
15	0.535	2.325	88.014						
16	0.490	2.131	90.144						
17	0.420	1.826	91.970						
18	0.405	1.759	93.729						
19	0.370	1.610	95.339						
20	0.328	1.427	96.766						
21	0.313	1.359	98.126						
22	0.227	0.987	99.112						
23	0.204	0.888	100.000						

Note: \* Extraction Method: Principal Axis Factoring.

Appendix C3:

Figure 1. Normal Q-Q Plot



## Appendix D: Results of Data Processing Using SPSS

### Appendix D1:

Table 2. Paired Samples t-test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval				
					Lower	Upper			
Pair 1	ExF1 - PeF1	2.44	1.55	0.11	2.22	2.65	22.37	200	0.00
Pair 2	ExF2 - PeF2	2.98	1.68	0.12	2.74	3.21	25.09	200	0.00
Pair 3	ExF3 - PeF3	1.99	1.34	0.09	1.81	2.18	21.08	200	0.00
Pair 4	ExF4 - PeF4	2.58	1.65	0.12	2.35	2.81	22.19	200	0.00
Pair 5	ExF5 - PeF5	3.08	2.10	0.15	2.79	3.37	20.82	200	0.00
Pair 6	ExF6 - PeF6	2.59	1.59	0.11	2.37	2.81	23.05	200	0.00
Pair 7	ExF7 - PeF7	2.97	1.82	0.13	2.71	3.22	23.06	200	0.00
Pair 8	ExpectedQ - PercievedQ	2.64	1.42	0.10	2.44	2.83	26.33	200	0.00

Note\*: ExF1= Mean rating for expectation of Factor 1  
PeF1= Mean rating for perception of Factor 1

### Appendix D2:

Figure 2. Box-plot Indicating SEM

