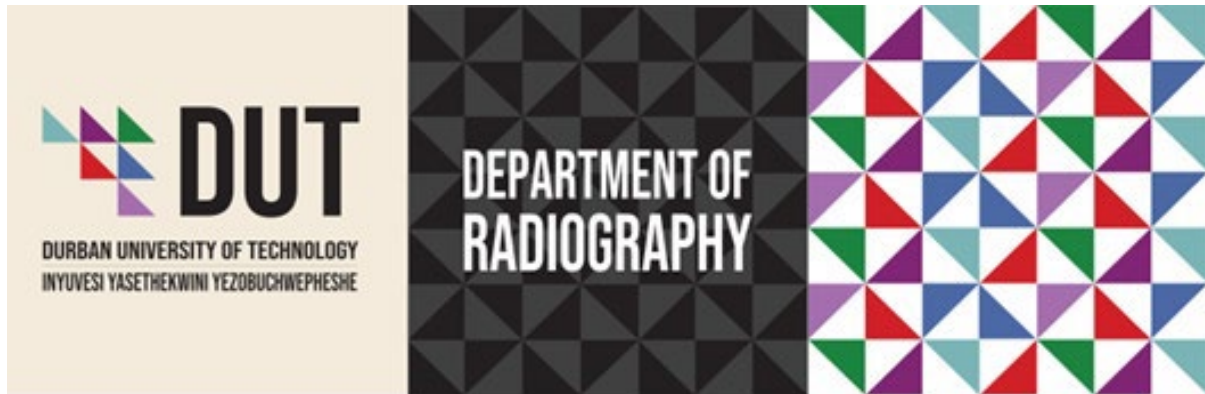




**FACTORS INFLUENCING ELDERLY PATIENT PERCEPTIONS AND
EXPERIENCES OF CLINICAL SERVICE QUALITY IN A PRIVATE AND A PUBLIC
RADIOLOGY FACILITY IN THE ETHEKWINI DISTRICT**

Dissertation submitted in fulfilment of the requirements for the Degree of Master of
Health Sciences in Radiography at the Durban University of Technology, Durban
South Africa

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Date: 2025

DECLARATION

I, Nikita Shah Seeparsad, hereby declare that all of the work included in this dissertation is entirely mine, including the citation of both published and unpublished sources. I also certify that the work in this dissertation has never been submitted in any format for evaluation or any other reason to the Durban University of Technology or any other institution

Nikita Shah Seeparsad 21203716

25/05/2025
Date

DEDICATION

Here I thought, my last graduation in 2019 was the end of a chapter, but it's the beginning of a whole new book. It's the moment where your dreams meet opportunity and the future is yours to create. Embrace the unknown – it's where the magic happens.

I dedicate this dissertation to my incredible family for their ongoing encouragement and support. To my amazing husband, Adil. Both my parents, Sudesh Shah and Anisha Shah. My sister and brother in-law, Nikara Shah and Ranvir.

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ABSTRACT

Background: Over the years, South Africa's ageing population has grown, resulting in vulnerable elderly individuals who require frequent use of healthcare. It is therefore important to ensure that these citizens receive the correct level of health services as they generally need more attention, effort and compassion in ensuring a pleasant healthcare experience. In line with the above, radiology healthcare specifically can be a more intensive process to the elderly individual. Hence it is important to know the elderly patient's clinical service requirements in order to improve their experiences when visiting radiology facilities. With a lack of literature on elderly patient satisfaction with clinical service quality in private and public radiology facilities specific to the Ethekeini district, the current study used the SERVQUAL model's five dimensions (tangibles, reliability, responsiveness, assurance and empathy) as the theoretical framework to quantify the service delivery of private and public radiology facilities, thereby attaining elderly patients' perceptions and experiences.

Aim: This research study aimed to determine the factors influencing elderly patient perceptions and their experiences of clinical service quality in a private and a public radiology facility in the Ethekeini district in order to identify, improve and enhance clinical care for elderly individuals.

Methodology: A quantitative research methodology with a descriptive research design and a positivist paradigm was used in this study. A convenience sampling technique of all the elderly patients was used to collect data that was analyzed using the latest version (26) of SPSS (the Statistical Package for the Social Sciences). The tests used were the t-test, one sample t-test, paired sample t-test, independent sample t-test, the Analysis of Variance Model (ANOVA), Cronbach's alpha and the Mann Whitney U test.

Results: An independent sample t-test was performed across demographics and payment types, revealing that the gap for all items under tangibles for expectations and experiences was far greater for outpatients than for inpatient respondents, and those paying cash perceive the gap between their experiences and expectations to be significantly larger than those who use medical aid in private. Paired t-tests and Cronbach's alpha were used to assess each individual question's expectations and experiences across all domains and to determine internal consistency. A paired t-test

was then performed on the entire domain, revealing a significant difference in the elderly's expectations and experiences with private and public radiology facilities, as well as their degree of clinical service quality. A one-sample t-test was used to analyze composite variables to determine significant differences in each overall domain, which revealed that the "mean" values were higher for the gap in expectations of elderly people, implying that while the elderly population agrees to some extent with the help/services they receive, their expectations are still higher than their experiences. A Mann-Whitney U test was used to compare each item within each domain across facilities. The mean rank values for these items with significant p-values were greater in private facilities than in public facilities, indicating that private facilities have a better level of agreement. To compare expectations and experiences across domains, the Mann-Whitney test was used for each item, comparing mean rankings rather than mean scores. All but two dimensions vary considerably amongst facilities: EXPECT_TAN (.058) and EXPECT_ASS (.146). The private Radiology facility had a greater agreement than the public Radiology facility. For each domain, the Mann-Whitney test was used to compare the mean ranks of private and public facilities. According to the p-value, four significant results were found: GAP_TAN (.044), GAP_REL (.010), GAP_ASS (.013) and GAP_EMP (.006) demonstrated a considerable discrepancy between the public and private facilities. In all categories, individuals who use public facilities perceive a substantially larger difference between what they get and what they anticipate obtaining than those who use private facilities.

Conclusion: The conclusion based on the first objective was that while there may be various factors impacting elderly patients' perceptions of clinical care quality, not all of them can be addressed as some are influenced by personal socio-economic conditions. The second objective result was that while the six domains of healthcare quantification may be applicable to current healthcare systems to some extent, there are still areas for development.

Keywords: elderly individuals, perceptions, experiences, expectations, statistical tests, domain.

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LIST OF ABBREVIATIONS

ANOVA	The Analysis of Variance Model
AU	African Union
ESR	European Society of Radiology
EXPECT_ASS	The expectations of elderly individuals under assurance
EXPECT_RES	The expectations of elderly individuals under responsive
EXPECT_REL	The expectations of elderly individuals under reliability
EXPECT_COMM	The expectations of elderly individuals under communication
EXPECT_ACC	The expectations of elderly individuals under accessibility
EXPECT_TAN	The expectations of elderly individuals under tangibles
EXPER_ASS	The experiences of elderly individuals under assurance
EXPER_RES	The experiences of elderly individuals under responsiveness
EXPER_REL	The experiences of elderly individuals under reliability
EXPER_ACC	The experiences of elderly individuals under accessibility
EXPER_TAN	The experiences of elderly individuals under tangibles
CME	Continuous Medical Education
GAP_ASS	The gap in assurance
GAP_EMP	The gap in empathy
GAP_COMM	The gap in Communication
GAP_ACC	The gap in accessibility
GAP_REL	The gap in reliability
GAP_RES	The gap in responsiveness
GAP_TAN	The gap in tangibles
HPCSA	Health Professions Council of South Africa
HR	Human Resources
UN	United Nations
WHO	World Health Organization

GLOSSARY OF TERMS

Elderly individuals - According to Atakro (2021: 2), elderly people are defined by the UN as individuals who are 60 years of age or older. Validation of the age will be achieved by an official identity document or medical history. In confirming the identification and characterizing specific demographic cohorts for clinical data collection, this allowed for a targeted assessment of radiology healthcare service quality.

Radiology - According to the white paper of the European Society of Radiology (2022: 1), radiology is a large and rapidly expanding segment of the service economy. It is a field of medicine that uses specialized imaging technologies to diagnose, treat and protect patients. This is characterized by the specific diagnostic imaging modality used and the clinical department providing the service. This was applied by outlining the exact radiology service departments being investigated for their quality of care.

Clinical service quality - The degree to which healthcare services effectively satisfy patients' wants and expectations, accord with evidence-based standards and contribute to intended health outcomes is known as clinical service quality (Alenezi *et al.* 2022:2). Quantifiable scores from patients-reported experiences measured, the clinical assessments and gap analysis between expectations and actual care received. This was applied as a core dependent variable to evaluate the standard of care provided in the radiology facilities.

Expectations - Personal experiences, prior knowledge and cultural norms influence views or assumptions about future events, outcomes or behaviors (Blackhouse and Ogunlayi 2020: 2). Measured by base line instruments, particularly questionnaires used in this study assessing what patients will anticipate from the imaging experience. This was applied to establish the baseline standards against which patient's subsequent experiences and perceptions of care will be evaluated.

Experiences - Experiences are personal and subjective events, feelings and interactions that shape an individual's vision of the world (Blackhouse and Ogunlayi 2020: 2). Measured after the examination through questionnaires with satisfaction rating scales. This was applied to quantify and assess the actual quality of clinical

interactions as reported by the elderly patients.

United Nations – The United Nations (UN) is a global organization founded on June 26, 1945, with the primary mission of sustaining international peace and security, human rights and serving as a focal point for harmonizing state actions in accomplishing those goals (Atakro 2021: 2). A category showing how well a country meets global human rights and the population standards. Applied by serving as a foundational theoretical reference point for establishing the age definition of elderly individuals

World Health Organization – According to Clift (2013: 6), the World Health Organization (WHO) is a United Nations specialized body that organizes responses to global public health concerns and emergencies. A score that measures how well healthcare facilities follow global health rules, keep patients safe during treatments and respond to health emergencies. This was used as a standard setting authority to contextualize evidence based clinical guidelines and protection protocols in the study

Health Professions Council of South Africa (HPCSA) – The HPCSA is a statutory regulator of healthcare professions in South Africa, established in 1974 under the Health Professions Act 56 of 1974 to promote healthcare; decide education requirements; and establish and maintain standards of ethical and professional activity for professionals (Alanazi *et al.* 2023: 1). Alanazi *et al.* (2023: 1) further added that it was founded with the goal of improving health quality by building a strategic policy framework for the effective co-ordination and leadership of its 12 professional boards in establishing Healthcare standards for professional training and discipline. This is a categorical variable for professional compliance which was used to measure by evaluating whether the participating radiology personnel are licensed. This was applied by ensuring the radiology facilities being evaluated meet the baseline legal, ethical and educational standards of South Africa

Research gap – A research gap is a specific area in a field where there is a paucity of current research, inconclusive findings or the need for additional exploration (Lilleheie *et al.* 2020: 2-3). The gaps were measured and located through the systematic review of the literature, evaluating previous studies to identify missing data, conflicting or bias findings and disregarded methodologies. The identified gaps served as justification for this research study.

Theoretical framework – According to Bethel *et al.* (2021: 2), a theoretical framework serves as a roadmap for the research project allowing researchers to effectively interpret their findings by giving a structure for arranging data and drawing conclusions. This was measured by establishing theories, models and key concepts that have previously been used to explain this research topic. During the data analysis, the framework was applied as a theoretical lens to interpret the findings, compare the results against existing literature and structure the final conclusions.

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION AND BACKGROUND

Diagnostic medical imaging is a critical and fast-paced healthcare intervention that requires precise technical operations alongside compassionate, individualized patient interaction (Adataara *et al.* 2020: 1). In South Africa, the rapidly growing population of vulnerable elderly individuals, navigating the diagnostic imaging environment can be an intensive, stressful, and physically demanding process (Lilleheie *et al.* 2020: 1-14). Ensuring that older patients receive optimal care is therefore a pressing concern within the radiography profession. Over the years, South Africa has experienced a steady increase in its vulnerable elderly population, who require more frequent use of healthcare services (Lilleheie *et al.* 2020: 1-14). Because older individuals generally require more time, patience, and compassion to achieve a pleasant healthcare experience, it is vital that radiographers meet their specific needs.

Research into elderly patient's general hospital experiences found that routine healthcare appointments are often complex, demanding, and hindered by poor communication and co-ordination further stated by Lilleheie *et al.* (2020: 1-14). The outcomes of such studies highlight elderly patients' dependency on family and friends, stressing the need for integrated, compassionate services centered on their rights and well-being. The clinical environment of a radiology department presents challenges that can significantly impact the quality-of-care elderly patients receive according to Lilleheie *et al.* (2020: 1-14). Diagnostic radiographers must balance technical proficiency and efficiency with patient-centered needs, often having to adapt their communication and handling skills for an aging cohort. A qualitative study conducted by Ding and Mankanjee (2024: 8) on radiographers' perspectives during older persons' diagnostic imaging encounters indicated that care quality is heavily influenced by the interactional processes that take place in the imaging room.

Their findings underscore the necessity for radiographers to optimize care and communication, challenge preconceptions, and ensure the emotional and physical comfort and safety of elderly patients. Consequently, knowing an elderly patient's clinical and emotional service requirements is crucial for improving their overall

experience within diagnostic radiology facilities. Despite the documented importance of person-centered care in medical imaging, there is a notable lack of literature focusing specifically on elderly patient satisfaction with clinical service quality in this context.

1.2 PROBLEM STATEMENT

Elderly patients require the frequent use of healthcare due to their health concerns, which involves receiving medical care that is prompt and caring. It is also assumed that private radiology healthcare is generally thought to offer outstanding clinical service quality than public healthcare, even though expensive does not always mean superior (Maphumulo and Bhengu 2019: 2). According to the literature, there is currently a high prevalence of general healthcare complaints concerning clinical treatment quality and the lack of respect provided to senior people (Naidoo and Van Wyk 2019: 1). Naidoo and Van Wyk (2019: 2) further state that in private and public radiology clinics, there is currently much focus on policies and procedures to improve clinical service quality for the elderly. Elderly patients frequently require specialized medical interventions, necessitating radiology services that are both prompt and deeply compassionate. While private radiology healthcare in the Ethekeini region is generally perceived to offer superior clinical service, quality compared to the public sector, premium costs do not inherently guarantee superior patient care (Maphumulo and Bhengu, 2019:2).

Literature reveals a high prevalence of general healthcare complaints regarding sub-optimal clinical treatment and a profound lack of respect shown to elderly individuals (Naidoo and Van Wyk, 2019:1). Real-world observations within the Ethekeini district facilities vividly illustrate these gaps. For example, in over-burdened public radiology departments, frail elderly patients are frequently observed waiting for hours on hard benches without physical assistance or updates, enduring a chaotic environment that directly compromises their dignity. Conversely, in the private sector, the experience often becomes overly transactional, an elderly patient who is hard of hearing or mobility-impaired may be rushed through a complex MRI or CT scan setup by staff who are driven by tight scheduling targets, leaving the patient feeling anxious and dismissed rather than cared for.

These recurring incidents demonstrate that despite a strategic focus on policies and procedures to improve clinical service quality for the elderly (Naidoo and Van Wyk, 2019:2), a disconnect remains between institutional policy and bedside practice. Frontline radiology personnel often appear unequipped with the specific communication and handling skills required to manage vulnerable, aging patients. Consequently, implementing effective measures to guarantee an optimal clinical service experience critically depends on empirical insight into the exact quality expectations of these elderly patients. This study addresses this operational gap by investigating the care received by elderly patients across both private and public radiology facilities in Ethekwini. It identifies the discrepancies affecting service delivery by integrating the five dimensions of service quality—reliability, responsiveness, assurance, tangibles, and empathy (Parasuraman, Zeithaml and Berry, 1985).

1.3 AIM OF THE STUDY

This research study aimed to determine the factors influencing elderly patient perceptions and their experiences of clinical service quality in a private and a public radiology facility in the Ethekwini district in order to identify, improve and enhance clinical care for elderly individuals.

1.4 OBJECTIVES OF THE STUDY

- To identify the factors influencing elderly patient perceptions and experiences of clinical service quality at a private and a public Radiology facility in the Ethekwini district; and
- To determine whether the SERVQUAL model can quantify healthcare and if it is applied to private and public radiology healthcare facilities.

1.5 SIGNIFICANCE OF THE STUDY

Elderly people are defined by the United Nations (UN) as individuals who are over 60 years of age. Clinical services to the elderly population have an important socio-economic impact on the private and public radiology healthcare sector as it allows for

growth and productivity within these facilities. Consequently, it can be presumed that it would be vital to ensure the comfort and well-being of elderly patients visiting private radiology facilities. In addition, policies such as the 'Policy on Quality in Healthcare for South Africa' and the 'Health Professions Council of South Africa's General Ethical Guidelines for the Healthcare Professions' have been highlighted as these are known to guide healthcare professionals in providing more efficient medical care. The World Health Organization (WHO) has developed six domains that quantify the treatment of individuals by healthcare systems, namely the assessment of autonomy, access, communication, confidentiality, dignity and prompt attention.

Currently there is a lack of information pertaining to elderly healthcare needs which is prevalent throughout the healthcare sector particularly in radiology in concurrence with the above domains of the WHO. This is important for understanding and recognizing the support and care they require. Hence, the key challenge in achieving good quality elderly healthcare is to adapt to the needs of elderly patients as perceived by themselves in conjunction with the domains derived from the WHO. Therefore, the aim of this study is to explore the factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public Radiology facility in the Ethekwini district in order to identify, improve and enhance clinical care for elderly individuals. This will be accomplished using a quantitative research method with a descriptive research design, together with a convenient purposive sampling method which is a form of non-probability sampling. The SERVQUAL Model is the proposed theoretical framework for this study as shown in Figure 2.1 in chapter two.

1.6 STRUCTURE OF THE DISSERTATION

Table 1.1: Structure of the dissertation

Chapter	Title	Summary
Chapter 1	Overview of the study	The background, motivation, rationale and main aims re discussed.
Chapter 2	Literature review	A comprehensive review of the literature on and related to the topic was undertaken and linked to the aim and objectives of the study.

Chapter 3	Research design and methodology	The type and design of the research as well as the method of data collection are described.
Chapter 4	Presentation of findings	The study findings are presented in this chapter.
Chapter 5	Discussion of findings	The study findings are discussed by referring to the literature sources that either support or refute the findings.
Chapter 6	Conclusions, limitations and recommendations	The findings are summarized, and final concluding comments are presented, together with limitations and recommendations arising from the findings.

1.7 CHAPTER SUMMARY

The discussion in this chapter indicated that patient perceptions of service delivery have a substantial impact on the Healthcare sector, especially that of radiology healthcare as it allows for the growth and productivity of staffing and the services they provide, especially to the elderly. Consequently, it can be presumed that it would be vital to seek the perceptions of the elderly themselves to tailor patient services for improved output and experience. The relevant literature on the topic will be reviewed in the next chapter. Chapter 2: Literature Review to follow on the next page.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The context, importance and objectives of the study were provided in Chapter 1, along with the structure of this dissertation. The literature on elderly patient service quality in healthcare is reviewed in this chapter. The chapter examines the literature sources that emphasize the elements that lead elderly patients to pursue private treatment. The researcher will also evaluate the literature on studies on related topics in other medical specialties both nationally (across the country) and globally (across the world). A review of the literature on the hypothesis that serves as the foundation for this investigation is undertaken. The purpose of this chapter is to demonstrate the significance and applicability of the topic under investigation, as well as the reliability of the selected theory with respect to the phenomena under examination. The chapter emphasizes the need for high-quality service and research related to radiological healthcare. This chapter aims to offer readers a thorough insight into the reasons that older people move from public radiology healthcare to private radiology healthcare; the influences behind obtaining such care; and the variables that may affect older people's opinions of such care.

2.2 LITERATURE SEARCH STRATEGY

Various search engines were used to attain information for the current literature review, include Google Scholar, PubMed, Research Gate, Science Direct, Google Search.

Keywords: Healthcare, elderly individuals, private healthcare, public healthcare, radiology facilities, globally, South Africa, service quality, policies, government, theoretical framework, SERPERF model, SERVQUAL model, Gronroos model.

2.3 BACKGROUND OF THE ELDERLY POPULATION

According to Atakro (2021: 2), elderly people are defined by the UN as individuals who are 60 years of age or older. According to the South African Department of Statistics (2023), all provinces saw a rise in the number of older people since the last analysis

in 2022, with KwaZulu-Natal having the second-highest number at 940,000. In South Africa, an individual is considered older under the Older Persons Act 13 of 2006 if they are 65 years of age for men and 60 years of age for women (Department of Social Development 2010: 22). The Department of Social Development (2010: 22) states that the goal of this legislation is to advance, preserve and uphold older people's rights, status, security and well-being. In most populations worldwide (Syria, China and India), the percentage and number of elderly individuals have been steadily increasing (Koistinen *et al.* 2021: 2). Solanki *et al.* (2019: 3) indicate that by 2050, there are projected to be 2.1 billion older people worldwide, with emerging nations likely to expand faster than industrialized nations. As a result, many nations will need to find ways to care for their ageing global population (Solanki *et al.* 2019: 3). The authors highlight that the number of elderly individuals seems to be growing globally, particularly in South Africa, which supports the need for better healthcare systems in emerging nations.

With age, relative health changes, such as issues with physical, cognitive and emotional health, become more serious and obvious (Sun and Li 2023: 2). According to Sun and Li (2023: 2); Aggarwal, Chaware and Aggarwal (2022: 3) and Elliot *et al.* (2022: 3571), a variety of health problems can result, namely cardiac problems, accidents and falls, depression, visual and hearing impairment, diabetes, hypertension, disorders, stroke, cholesterol, forms of arthritis, cancers, urinary incontinence linked to chronic renal diseases, delirium and dementia, as well as complex dental issues. Aggarwal, Chaware and Aggarwal (2022: 3) indicated that dementia is one of the health issues that has the greatest influence on medical research since it necessitates a more careful approach to healthcare. The authors indicate several medical conditions that are common amongst the elderly which make them more vulnerable than younger patients. These include diabetes, cardiovascular disease, osteoporosis, cognitive decline and dementia, arthritis, malnutrition and chronic obstructive pulmonary disease. This necessitates their demand for healthcare services as well as the critical importance of compassionate and careful service delivery tailored to their needs.

Lee *et al.* (2020: 2) explain that the various multi-morbidities faced by the elderly make it very difficult for them to access and navigate the healthcare system, with travel being the most difficult as it necessitates frequent trips to various healthcare service

providers. Parry, Wani and Yaseen (2021: 193) add that senior patients tend to seek out a variety of specialized facilities to analyze their health concerns, and in most situations, this includes the involvement of radiology. The authors make it evident that the elderly require many specialist consultations that explain their frequent visits to different healthcare facilities, which can be quite lengthy. This highlights the need for easy and accessible healthcare facilities and staffing personnel that are compassionate to the elderly, allowing them to have a pleasant experience and day.

According to Atakro *et al.* (2021: 3), patient experiences and perceptions can help healthcare providers gather important data, as well as enhance and direct the older patient's care experience. Naidoo and Van Wyk (2019: 2) state that the United Nations created the Madrid International Plan of Action on Ageing (MIPAA) in 2002, the first agreement globally that recognized elderly individuals as contributors to a developing society which binds government into including all elderly individuals in economic and social development policies and includes programs on poverty reduction. The MIPAA is a policy that is intended to improve the elderly's access to healthcare, enhance integrated care in primary health for the elderly, and encourage more geriatric and gerontology research and training, according to Naidoo and Van Wyk (2019: 2). Subsequently, the African Union (AU) has adopted the MIPAA to develop the African Union Policy Framework and Plan on Ageing (AU plan) (Naidoo and Van Wyk 2019: 2). Saka, Oosthuizen and Nloto (2019: 1) explain that according to these policies, each nation is responsible for defending the rights of senior citizens. However, despite this, little has been done to address the elderly population's healthcare needs due to a lack of funding and other government priorities. The authors make evident that the United Nations and African Union have developed policies to enforce and prioritize care to the elderly. They add that even with these policies in place, healthcare to the elderly still seems to suffer due to the lack of funding and other government priorities.

2.4 QUALITY OF CARE IN GENERAL HEALTHCARE GLOBALLY

The World Health Organization as established in 1948 as a United Nations organization that globally links countries, partners and individuals to advance health, safeguard the global community and assist the most vulnerable so that everyone, everywhere, can achieve optimal health (Clift 2013: 6). Global initiatives to increase universal health coverage are spearheaded by the WHO so that when a health emergency arises, they can oversee and plan the global response, according to Clift

(2013: 6). The author provides a background on the WHO and their role in global healthcare.

The six qualities of effective, efficient, equitable, patient-centered, integrated and safe care are used by the World Health Organization to characterize healthcare (Clift 2013: 6). According to Clift (2013: 7), a healthcare responsiveness score was developed to quantify how individuals are treated by healthcare systems regarding the key dimensions. Clift (2013: 7) and Adatara and Amooba (2020: 1) indicate that the domains accessed are autonomy (which is related to the patient and their involvement of decision-making about their personal healthcare needs) access (the choice of healthcare provider used); communication (clear and sound explanations); confidentiality (of personal information); dignity (spoken to in a respectful manner); and prompt attention (the waiting times). Adatara and Amooba (2020: 6) explain that their definition of patient involvement and patient-centeredness refers to patients' rights and chances to participate in and have a say in decisions regarding their own healthcare needs. The authors expand on the healthcare responsiveness score, which is used to measure how individuals are treated by healthcare systems. This is done using the six key dimensions mentioned above, which will be used to quantify the elderly patients' perceptions and experiences of clinical service quality in public and private Radiology healthcare in the Ethekekwini district.

To achieve the six dimensions outlined by the WHO, Sarkar *et al.* (2023: 2) state that healthcare services must shift their attention from disease-associated to intrinsic capacity, secure integrated patient care and person-centeredness for older people in an organized manner. Sarkar *et al.* (2023: 2) add that healthcare services should also ensure that highly qualified professionals with experience who manage multi-morbidities in both their healthcare and daily lives should be working with older patients. It is evident that the WHO has taken individuals' concerns with healthcare services seriously by developing the responsiveness score. Hence, it is necessary to determine if these dimensions are implemented in private and public radiology healthcare facilities by attaining direct information from elderly individuals. Adatara and Amooba (2020: 3-4) state that patients feel like a burden, which is connected to stress, depression and a lower quality of life. Adatara and Amooba (2020:3-4), as well as Saka, Oosthuizen and Nloto (2019: 4-5), found that in primary healthcare, the health status of the elderly can be improved when high-quality, reasonably priced healthcare

services are offered. According to Sarkar *et al.* (2023: 3) and Zoorab *et al.* (2022: 2), a unit of the Research and Development corporation (RAND) developed a system in the United States for measuring the quality of care provided to elderly patients.

The authors elaborated that the RAND corporation first originated as 'Project Rand' and is an American non-profit global policy think tank, public sector consulting firm and research institute that engages in research and development in a variety of fields and industries. This system is now used to evaluate the quality of care provided to a group of elderly people living in the community who were enrolled in a managed care plan. The outcome of the managed care plan was that vulnerable elderly patients only received half of the recommended care and treatment, but diagnostic procedures were frequently given; patients treated for general medical conditions such as hypertension received better care than those treated for falls and incontinence; and doctors did not always prescribe recommended medications stated by Sarkar *et al.* (2023: 3) and Zoorab *et al.* 2022: 2). The authors provide evidence on the lack of quality of care that elderly individuals who participated in the managed care plan received. This makes it evident that despite efforts to create a better quality of care to the elderly, it persists as a concern not only in South Africa but also globally.

2.5 PATIENT EXPERIENCES OF OTHER HEALTHCARE PROVIDERS IN SOUTH AFRICA AND GLOBALLY

In the medical industry, the doctor-patient connection is the foundation of overall confidence in the healthcare system (Gonarkar, Kabir and Thakur 2020: 6). The level of patient trust in their doctor correlated with improved patient outcomes and higher levels of satisfaction with the care they receive (Ren *et al.* 2023: 1). During the Covid-19 pandemic, patients' perceptions of doctors' honesty, which were already high compared to practically all other professions, hit an all-time high, according to a Gallup Poll dated December 2020 (Ren *et al.* 2023: 1). Patients' feelings of uncertainty and fear during the Covid-19 outbreak were normal due to patient interactions with their physicians. However, during the Covid-19 outbreak, this interaction was very limited, according to Ren *et al.* (2023: 5). Since attending physicians have the most clinical experience in identifying patients' psycho-social needs, this likely helped to reduce patients' fears during hospitalization and coupled with an increase in time spent providing direct patient care compared to other clinicians, would understandably

translate into greater levels of patient trust (Ren *et al.* 2023: 5). Strong doctor-patient relationships have been demonstrated to improve a wide range of healthcare outcomes, including medication adherence, decreased illness co-morbidity and death (Gonarkar, Kabir and Thakur 2020: 6). The authors summarize that patients appreciate the relationships and time spent with healthcare professionals in the medical industry as this has a positive impact on their health status and the decisions they make regarding the treatment they receive. According to research in India, patients strongly commended doctors who gave them enough time, communicated clearly and who they could trust with their private information, as indicated by Gala *et al.* (2022: 2). The authors indicate that building relationships between healthcare professionals and patients allows for a sense of trust and ease, which in turn allows patients to be more comfortable with sharing their medical conditions.

In physiotherapy, a study in South Africa showed that patients who had been treated by the same therapists throughout the session had a higher likelihood of satisfaction, especially if their health status improved (Gaudie *et al.* 2022: 1-9). Additional research by Gaudi *et al.* (2022: 1-9) demonstrated that contented patients are more likely to adhere to treatment and achieve a higher quality of life. This finding was supported by the physiotherapist's relationship-building efforts, which included demonstrating interest in the patient's improvement; dispelling any doubts they may have had; and outlining the course of the treatment. As a result, a relationship of trust and safety between the patient and the therapist is formed, inspiring the patient to make progress in their pain during treatment. However, an unhappy patient may have stopped receiving treatment and influenced other patients by projecting a poor image of the medical industry (Gaudi *et al.* 2022: 1-9). According to Sekomo *et al.* (2023: 1-2), a study in Ethiopia showed that rehabilitation is a crucial part of the whole care package, especially for senior patients. However, patient results show an inadequate response to fundamental healthcare demands due to a lack of resources and poor management. The author explains that in physiotherapy, continued professional relationships with good service quality to a patient resulted in a positive outcome, whilst patients who were not happy with the service stopped having treatment, which led to a negative outlook of the medical industry.

A recent study by Manchaiah *et al.* (2021:3) in the United States found that most elderly patients' experiences with healthcare services were favorable, despite some

concerns about the clinical process and poor encounters with administrative processes. According to McMahon *et al* (2021: 3-4), in Australia, England, US and Canada, most elderly patients stated that their opinions of current and future hearing healthcare services depended on perceived needs, stigma (hearing loss, hearing aids and negative views on ageing), hearing healthcare systems (who to trust, unclear) and value (cost-benefit of technology). The author underlines that the relationship between a patient and medical healthcare professional through their journey of recovery is of vital importance. Medical healthcare professionals have a great influence on the progress of a patient's health outcome through their time of illness, which creates trust and allows a patient to be less fearful, more at ease and more comfortable during their medical processes. This emphasizes the need to create elderly patient relationships with radiology personnel during Radiology examinations, which is one way of gaining patient trust and easing patient fears to allow for a less daunting experience, consequently having a positive impact on the quality of service they receive.

2.6 QUALITY OF CARE IN GENERAL HEALTHCARE IN SOUTH AFRICA

The degree to which care services impact the likelihood of the best possible outcomes for patients is another way to characterize quality (Alenezi *et al.* 2022: 1). According to Endeshaw (2019: 87), there are various definitions of and perspectives on what quality is. Wang, Malilo and Ibrahim (2020: 122) define service quality as the provision of superior and exceptional services relevant to customers' expectations and perceptions. This is the current strategic tool for operational efficiencies and improving business performances (Wang, Malilo and Ibrahim 2020: 122). The authors provide a brief background on the quality of care for better understanding.

In South Africa, the quality of care in general healthcare is significantly impacted by how well a healthcare practitioner raises the chance of desired healthcare outcomes, while patient satisfaction is based on the caliber of the services they receive (Arumugam *et al.* 2018: 414). Two facets of healthcare quality are significant, namely the clinical (technical) and non-clinical (functional), as stated by Endalamaw *et al.* (2023: 8). Non-clinical care does not involve any kind of healthcare treatment or testing, whilst clinical care is defined as everything related to the direct healthcare treatment or testing of patients (Alenezi *et al.* 2022: 2). While the non-clinical aspect focuses on how healthcare services are delivered to patients, the clinical aspect is concerned with the precision of procedures, skills and medical diagnoses

(Endalamaw *et al.* 2023: 8). The authors indicate that healthcare service quality depends on the manner in which it is delivered and the precision with which it is done. Hence, the views from elderly patients attending private and public radiology facilities should indicate both these aspects to measure the quality of care.

Patientcare is evaluated based on clinical service quality metrics, which measure the overall treatment experience and results (Blackhouse and Ogunlayi 2020: 2). Examples of clinical quality metrics provided by Blackhouse and Ogunlayi (2020: 2) are patient/family engagement, patient safety, co-ordination of patient care, population/public health, effective use of healthcare resources, as well as clinical procedures or efficacy. The measurement of clinical performance, improvement, credentials and clinical privileges, risk management, adverse reactions and patient safety are all considered components of clinical quality management by Aggarwal, Aeran and Rathee (2019:181). The author makes mention of how patient care is measured and what system of measurements should be taken into consideration to attain reliable data from patients.

2.7 ROLE OF RADIOLOGY IN ELDERLY HEALTHCARE

Radiology, according to the White Paper of the European Society of Radiology (2022: 1), is a large and rapidly expanding segment of the service economy. It is a field of medicine that uses specialized imaging technologies to diagnose, treat and protect patients. According to Bryant and Lockwood (2023: 1-2), it is crucial to comprehend customer service delivery, customer satisfaction, related issues and quality assurance improvements when working as a service provider. Service delivery is the main responsibility of the radiology department, which McIntosh (2022: 25) explains should be quick, efficient and successful because it has an impact on how customers perceive the department. According to both Brady *et al.* (2020: 209–210) and Mohammed and Rosenkrantz (2020: 687), radiology should be viewed as a crucial part of value-based healthcare because it is a healthcare resource shared across all levels of healthcare delivery, various medical specialties and patients of various age groups. The authors indicate the importance of radiology healthcare and how it has become the foundation of a patient's medical diagnosis but is just one phase in the entire medical treatment process.

Radiology services are assessed based on their dependability, responsiveness,

empathy, assurance and tangibles (McIntosh 2022: 25). According to a study by McIntosh (2022: 25), service quality in radiology was measured using three levels, namely:

- Level 1 - This involves fulfilling the fundamental requirements for quality, performing the appropriate radiological examination and providing the report to the referring physician within 24 hours.
- Level 2 - A direct phone call is made immediately following the patient's examination to discuss unexpected discoveries. The report is given within 24 hours, and the patient meets the Intermediate level of satisfaction.
- Level 3 - Patients are pleased with the efficient, friendly and compassionate staff. They receive educational pamphlets regarding examinations. Within an hour after the patient's Radiology appointment, the referring doctors can see and discuss reports with the patient.

The author highlights important Radiology service delivery aspects, as indicated in each level above, that can be used to quantify patient/referring doctor satisfaction. Brady *et al.* (2020: 210-212) explain that it is difficult for referring physicians to weigh the advantages and disadvantages of imaging tests without knowing which outcome is most important to the patient. Therefore, Bryant and Lockwood (2023: 208) make it evident that a patient in Radiology is required to go through a few processes, including registration, appointment confirmation, the type of examination requested, one or more radiological procedures, which can vary depending on their complexity and degree (from a simple x-ray to an intricate invasive procedure), and finally the diagnosis is made. Patient portals and health applications would be the first point of entry for patients into technologically improved care. However, the elderly are typically slower with such developments and are disadvantaged in their medical care due to the integration of these technologies into modern medicine with features being continually added to it, according to both Zoorab *et al.* (2022: 2) and Raja, Galvin and Kymre (2022: 2-3).

Raja, Galvin and Kymre (2022) add that this could also benefit the elderly by focusing on self-management, autonomy and empowerment. The authors explain several administration processes required by individuals when attending Radiology appointments. These processes alone can be rather complex and challenging, especially to the elderly individual. Despite their health concerns and stress, these

processes can also be quite overwhelming for the elderly, which explains the need to afford them more time and support. Over the years, there have been great developments with these technologically advanced radiology processes, which seem to benefit the elderly individual by allowing them to be independent and benefits the radiology facility by shortening the administration time and possibly acquiring more staffing to assist with these processes, thus making it an easier process for individuals, especially the elderly. These processes influence elderly patient perceptions and experiences.

Medical information is a crucial component of patient care. Radiologists need accurate information from the patient's doctor to perform a Radiology examination with the outcome of a proper diagnosis, explain Parry, Wani and Yaseen (2021: 192). According to a recent survey by Suchsland *et al.* (2019: 394-395), specialists requesting patients to attend private radiology healthcare included the ability to promptly schedule patient appointments, personal professional relationships with radiologists, the effectiveness of receiving patient results, the quality and accuracy of radiologists, the range of different techniques, location convenience, patient preferences and hospital affiliations. The author emphasizes the importance of good patient and referring doctor relationships and the need for good quality Radiology services to be provided as it enhances the radiology experience provided to the elderly.

Rockall *et al.* (2022: 2) states that there are several patient safety concerns in radiology, including ensuring the physical and psychological well-being of patients under direct care; maintaining the highest standard of service; and preventing direct harm from the technologies and procedures used by healthcare professionals. Maneuvering the elderly around radiology facilities can also be exhausting, hence performing any radiology procedure is physically challenging, which leads to subpar imaging quality and occasionally non-diagnostic results (Donaldson *et al.* 2020: 1-6). Patients with hearing impairments visiting radiology departments have difficulty communicating dealing with identification, consenting and positioning, whilst patients who are wheelchair-bound could have been physically active their entire lives, but now experience fatigue after a little stroll, which is frequently psychologically challenging to accept (Mohammed and Rosenkrantz 2020: 69–70). The authors underline the struggles experienced by elderly patients which make Radiology examinations difficult.

Radiology personnel play an immense role in influencing the patient's experience, which is essential in measuring the service delivery of radiology care.

With all the difficulties, radiology requests with irrelevant investigations should be turned down as conducting invasive tests on older patients without a need is considered bad medicine by Rockall *et al.* (2022: 2-3). According to Mohammed and Rosenkrantz (2020: 68), it is also clear that giving oral and intravenous contrast agents to individuals who have a history of chronic renal and cardiac disorders is more dangerous. Anon (2019: 3) states that palliative radiology refers to the use of the fewest examinations and least invasive investigations possible to improve the quality of life for elderly people. Rockall *et al.* (2022: 2-3) states that technicians should be aware of their needs, which may involve giving each inspection more time or responding rapidly to age-related problems such sensitive skin, sensitivity to temperature fluctuations, and hearing or vision loss. "Age is not a disease, hence patients should not refuse examinations due to advanced age; doing more does not always equal better; keep it simple; radiation protection is not a concern amongst the elderly; do not be afraid of renal failure with iodine; do not be afraid of gadolinium; think about age-related changes first; and do not harm" are the ten commandments of geriatric imaging (Gossner 2022: 745-746). The author emphasizes the importance of the ten commandments of geriatric imaging that should be considered when interacting with elderly patients and their need for radiology examinations and not to prevent more harm.

Bryant and Lockwood (2023: 208) explain that good communication between healthcare workers and patients improves the co-ordination of care; patient satisfaction; improves the safety outcome; and decreases the costs of care. This can be done by simply smiling when greeted or by bringing a blanket to keep them warm (Lee *et al.* 2021: 5). Mohammed and Rosenkrantz (2020: 69–70) add that while a patient is in the examination room, medical staff can help them transfer from a wheelchair to a bed, but first they should ask the patient how they would like to be helped and give them the opportunity to take the initiative. Brady *et al.* (2020: 212) state that radiologists seldom deal with patients, hence crucial communication in radiology takes place between receptionists, radiographers and patients. Therefore, each encounter influences the patient's overall experience. The author highlights that elderly patients should be comforted by healthcare professionals who take the time to understand and appreciate their life experiences.

A patient receiving medical examinations that involve the use of radiation is required by law to be informed of the radiation risks and the anticipated diagnostic and therapeutic benefits of the examination/procedure, according to the European Society of Radiology (ESR), hence all communication and care must be prompt, efficient and personalized (Anon. 2019: 1–5). Anon (2019: 1) and Mohammed and Rosenkrantz (2020: 67) indicate that patients have the right to knowledge and decision-making, information is conveyed in an intelligible way, patients have consented in the decision-making process, and that the needed outcome has been reached. Rockall *et al.* (2022: 3) explain that radiology departments need to adopt ways that are considerate and caring toward the senior patient population. In South Africa, the Health Professions Council of South Africa's (HPCSA) General Ethical Guidelines for Healthcare Professionals provides core ethical values and standards for good practice, emphasizing morals and ethics as a set of rules that help medical personnel treat patients more effectively (Alanazi *et al.* 2023: 1). The author explains what service quality should be amongst the elderly patient population with the HPCSA – General Ethical Guidelines for Healthcare Professionals that facilitates medical care treatment to patients. However, there is very little evidence of the current quality of service in private and public radiology healthcare, which makes it apparent that there is currently a gap in literature specific to the eThekweni district.

2.8 THEORETICAL FRAMEWORK

This section contains a review of two instrument types (models) used for measuring service delivery. These theoretical framework models were selected for their potential ability in describing systems, processes and their outcomes. Each model was used to investigate and assess information and to present findings in the most logical way possible. According to Bethel *et al.* (2021: 2), theories are articulated to provide a multidimensional logical understanding of a phenomenon between various constructs and propositions. A theoretical framework on the other hand is explained by Brydges and Batt (2023: 90) as a systematic process of how the researcher integrated theories into the research process to form a research study framework. For a theoretical framework to be created, a researcher must define any theory and concept that will create a basis for the research, link them through logical connections and relate the concepts to the study being researched (Bethel *et al.* 2021:2).

The first model taken into consideration for this study was Gronroos's model, developed in 1984. Gronroos was the first amongst other researchers to call for conceptual models of service quality to recognize and understand the concept better (Olga and Mohammed 2015: 72-73). In his model of service quality, Kang and James (2004: 268-269) explain that Gronroos highlighted how customers compare the services experienced with the services they expected when assessing service quality. Endeshaw (2019: 90) mentions that customer perceptions of the services received and what influences service quality is the main feature in Gronroos's model. Gronroos distinguished two types of service quality models which were developed in the 1980s, namely the Nordic (European) model and the American model (Kang and James 2004: 268-269). The Nordic model consisted of two service quality dimensions, namely technical quality (the service delivery process in an organization) and functional quality (how the services were delivered to consumers), which were explained by Kang and James (2004: 268-269). According to Gronroos, the Nordic model lacks operationalization as it does not offer a practical measurement tool, which is why most studies have not used this model (Mosadeghrad 2012: 252).

The American model, or SERVQUAL, explores the difference between the service expected and the perceptions of customers of the level of services received, described in the work of Kang and James (2004: 268-269). Gronroos also mentions the company image indicated in his model, which has a positive or negative impact on the perception of the quality experienced stated by Jain and Gupta (2004: 26-27). The SERVQUAL model was developed by Parasuraman, Zeithaml and Berry in 1985 and consisted of five organizational gaps, which were later refined into ten dimensions of service quality and then refined into five dimensions, namely reliability, responsiveness, assurance, tangibles and empathy (Endeshaw 2019: 90). The SERVQUAL model has been extensively applied in different organizations and focuses on the differences between a customer's expectations of services and the perceptions of services received, according to Kang and James (2004: 268-269).

Fukey *et al.* (2014: 351) state that the SERVQUAL model is a tool that can also assist in identifying gaps between variables that affect the service quality offered by organizations. Researchers have argued that quantifying the difference between expectation and perception does not allow for a more accurate or thorough evaluation of service quality. To overcome this, Cronin and Taylor (1992) suggested the

development of a performance-only model called SERVPERF, as described by Kirubashini and Williams (2016: 82-83) and Yarimoglu (2014: 94). The SERVPERF model was utilized to address SERVQUAL's limitations and was inclusive of a greater range in total service quality, according to Kirubashini and Williams (2016: 82–83) and Endeshaw (2019: 90). Endeshaw (2019: 90) made the following claim in support: "A few researchers found that, on average, most people do not remember past experiences accurately but instead allow their experiences to shape what they initially believed".

The SERVPERF model was found to be a better model for measuring service quality than the SERVQUAL model because the latter had led to skewed expectations. The perceptions of the actual services received, rather than the gaps between perceptions and expectations described by Parasuraman *et al.* (1985), are the best indicators of service quality. Yarimoglu (2014: 94) mentions that the SERVQUAL model has drawn criticism from many other researchers due to its difficulty in replicating its five dimensions across various service settings; its inconsistent results in the health sciences; and its failure to account for changing customer expectations over time. It also lacks the integration of technical service quality. Furthermore, Yarimoglu (2014: 94) states that although the SERVQUAL scale's creators believed that it included both the technical and functional quality elements, it was still thought to lack any sort of technical quality measurement.

While the measurement of service quality remains a subject of ongoing academic debate, the SERVQUAL model remains one of the most widely applied, thoroughly validated, and resilient frameworks in service quality research. Prominent critics, such as Cronin and Taylor (1992), support the performance-only SERVPERF model, arguing that measuring actual service perceptions alone provides higher predictive validity and reduces survey weakness. Furthermore, Dagger, Sweeney, and Johnson (2007:124–125) establish that health service quality is a complex, multidimensional construct where measurement preferences vary based on context. Despite these critiques, the SERVQUAL model is deliberately selected as the primary framework for this study due to its unique analytical functionality. Because elderly healthcare experiences are heavily influenced by deep-seated psychological and physical vulnerabilities, evaluating perceptions alone (as SERVPERF does) fails to capture how far actual diagnostic care falls short of an elderly patient's baseline expectations.

By measuring the precise gap between initial expectations and final experiences, this study can diagnose specific operational deficiencies in radiology departments such as whether staff empathy or clinic responsiveness fail to meet the standard of care seniors anticipate. No empirical evidence justifies excluding SERVQUAL on the grounds of undependable findings; rather, its dual focus on expectations and perceptions provides the precise diagnostic tool required to uncover service delivery gaps in the Ethekeini district.

2.9 SERVQUAL MODEL

Below is Figure 2.1: SERVQUAL Model with its five dimensions, Tangibles, assurance, reliability, responsiveness and empathy and Table 2.1: SERVQUAL Model dimensions, explanation and application to the current study.

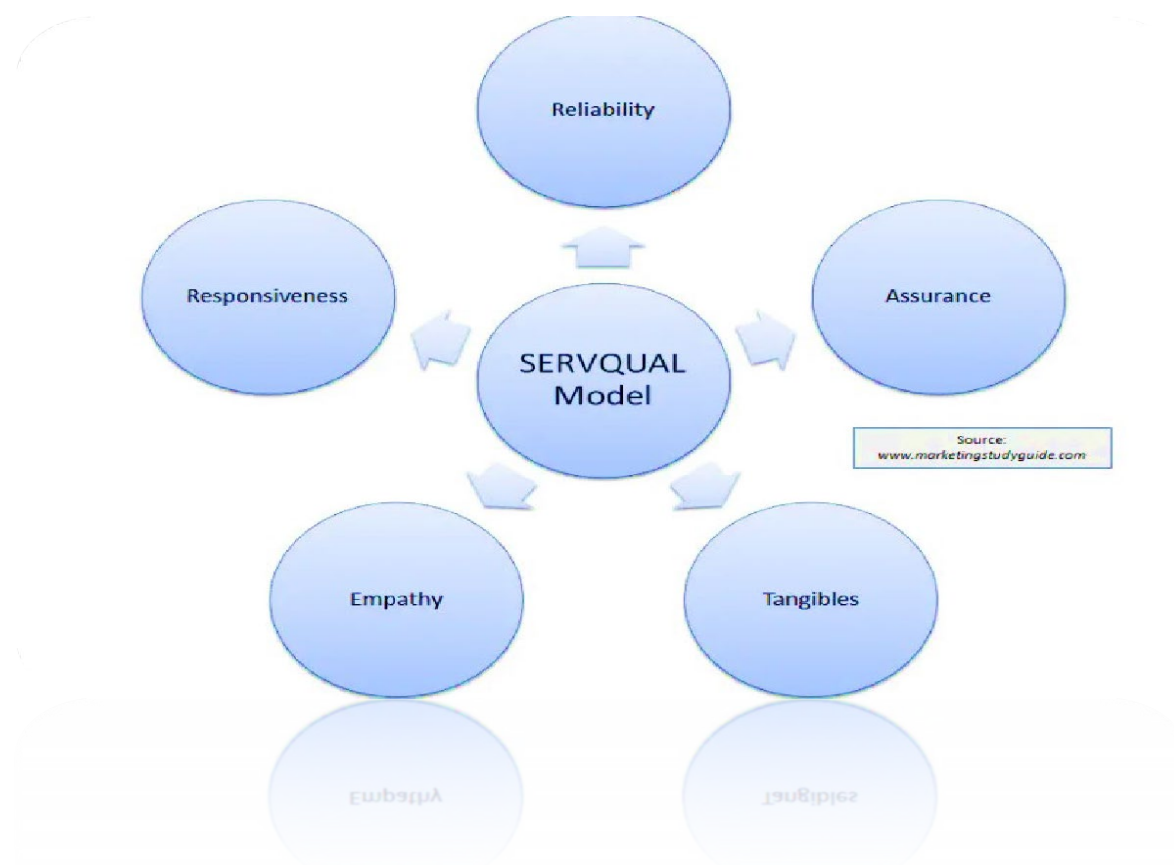


Figure 2.1: SERVQUAL Model (Fripp 2023)

Table 2.1: SERVQUAL Model dimensions, explanation and application to the current study

SERVQUAL Dimensions	Description	Application to the current study
Tangibles (Environment)	As described by Yarimoglu (2014: 83), is the physical infrastructure, such as buildings, structures, equipment and employees, both in terms of quantity and quality, that facilitates the provision of healthcare services.	What are the patient perceptions of the atmosphere(mood) of the radiology environment and the appearance of Radiology personnel?
Empathy	According to Mosadeghrad (2012: 256), empathy is the ability to understand and care about the healthcare surroundings supplied to customers. The attributes of successful learning, trust, respect, confidentiality, civility, sympathy, understanding, responsiveness, and good client-provider communication are included in this group (Mosadeghrad 2012: 256).	Are elderly patients given individualized attention by the radiology personnel when being assisted and does is this understood by the staff?
Reliability	According to Panteloukas, Asopo, and Buwag (2012: 31), reliability is the capacity to continuously provide on-time, correct, truthful, and dependable services. This entails maintaining precise records, assessing fees fairly, and delivering the service on schedule (Yarimoglu 2014: 83).	How consistent are radiology appointment times in terms of waiting periods, reliability of equipment, performance of Radiology examinations and effectiveness of results?

Assurance	Assurance, according to Yarimoglu (2014: 83), is the ability of staff workers to be accommodative, knowledgeable and comforting.	Are radiology personnel trained in health and safety and is this applied to the environment when assisting elderly patients?
Responsiveness	According to Mosadeghrad (2012: 256), responsiveness refers to the reply of requests, feedback, questions and difficulties from customers in a timely manner, this is a sign of a company's commitment to providing customers with quality service.	Are radiology personnel competent and committed in dealing with requests, feedback, questions and difficult situations? Are the staff regularly trained in how to handle difficult situations efficiently?

2.10 THE RESEARCH GAP

According to Naidoo and Van Wyk (2019: 4) in Sub-Saharan Africa, several elderly people described how they were denied several fundamental human rights under the Apartheid era (between 1948 – 1994) as most of the laws and policies encouraged racial discrimination, especially against black people, which made them more vulnerable to ill-health later in life. The deregulation of public healthcare is eventually what led to the expansion of the private healthcare sector in South Africa (Naidoo and Van Wyk 2019: 4). Presently, in primary healthcare the factors that involve seeking private healthcare rather than public healthcare include protracted waiting times for outpatient care, unprofessional attitudes of healthcare workers, a lack of medication availability, insufficient healthcare information from facility staff, and, finally, a lack of specialist care (Mulumba *et al.* 2014: 2-3). According to Lilleheie *et al.* (2020: 2-3), studies in primary public general healthcare showed low service quality at clinics, insufficient materials, a staffing shortfall, faulty equipment and a lack of basic resources. The authors indicated the various concerns that demotivate individuals from attending public general healthcare.

A study conducted in a primary outpatient healthcare setting in a teaching hospital in Ghana indicated that private healthcare enables patients to benefit from consistent opening hours, consideration and care during registration processes, shorter wait times for medical attention, sanitary settings and proper explanations of their medical condition (Adatara *et al.* 2020: 3). Suchsland *et al.* (2019: 394–395) assert that individuals have high confidence and trust in the effectiveness of private healthcare. Zoorab *et al.* (2022: 3-5) cite a study in India showing that variables in obtaining suitable healthcare at hospitals included paying capacity, payment methods, reputable doctors, nurses and hospital quality. Suchsland *et al.* (2019: 394) further cite findings indicating that employees used medical insurance as payment methods for the medical expenses of elderly patients, while some participants also mentioned paying for care themselves or receiving assistance from their children and other close relatives. A study conducted in Sub-Saharan Africa by Naidoo and Van Wyk (2019: 3) also revealed that only a small percentage of senior people have health insurance, while most elders are dependent on traditional healers and public healthcare systems.

In light of the above, Naidoo and Van Wyk (2019: 3) identifies that in Africa, there is consensus that private general healthcare is of better quality than public general healthcare. Whilst Naidoo and Van Wyk highlights motives for seeking private general healthcare above, Naidoo and Van Wyk explains the limitations some elderly individuals face in doing so, which is purely due to funding and some of their debilitating health obstacles. This is the reason for most elderly individuals being forced to attend public general healthcare, whilst some receive funding from family and employee medical funds and are still able to navigate the healthcare facility. Very little information exists on the quality of care received at radiology facilities in private and public healthcare sectors in the Ethekewini district. Since it is the leading force behind the healthcare management of elderly patients, it is important to identify this extant gap in literature. In addition, all medical facilities are obliged to provide medical care that is moral and ethical and compassionate to all individuals, irrespective of whether it is free or paid for (Adatara *et al.* 2020: 4). The intention of the study is to identify the type of treatment received in private and public radiology facilities to allow for elderly individuals to receive improved quality of care without having to stress about the type of radiology facilities they attend and their personal fears, which include their health in terms of mobility and lack of funding.

2.11 CHAPTER SUMMARY

This chapter examined the importance of high-quality healthcare as well as advancements in the management and treatment of elderly patients, even though there are still numerous obstacles to overcome. There is currently a scarcity of research to support the limited understanding of the intricacies of radiology healthcare and the perspectives and experiences of the aged. Elderly people are entitled to make decisions and take charge of many things, including their own healthcare needs. A few things that affect older people's opportunities for choice and control are their innate abilities, the environments in which they live, the financial and personal resources available to them, and the opportunities that are presented to them. Collectively, these elements establish an aged person's autonomy, which has a significant impact on that person's dignity, freedom, integrity and independence. Chapter 3: Research Design and Methodology to follow on the next page.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The main purpose of this study was to develop an understanding of the factors that influence elderly patients' perceptions of clinical service quality in private and public radiology healthcare to improve and enhance service quality and the outcome of patient satisfaction. This chapter highlights the research design, methodology, research process and ethical considerations followed in this study.

3.2 RESEARCH TYPE AND DESIGN:

Research methods are particular techniques for gathering and evaluating data. Three key approaches are commonly used in research, namely the qualitative research methodology, quantitative research methodology and mixed methods approach.

Table 3.1: Types of research methodology

Research method	Description
Qualitative research methodology	According to Kumar (2008: 8), qualitative research refers to the gathering and evaluation of non-numerical data such as text, audio or video in order to comprehend ideas, viewpoints or experiences. It can be used to gather detailed information about an issue or come up with fresh research ideas (Kumar 2008:8).
Quantitative research methodology	Edmonds and Kennedy (2017: 142) state that the process of gathering and analyzing numerical data to characterize, control or predict variables of interest is quantitative research. This kind of study helps in making predictions, examines the causal links between factors or variables and generalizes the findings to larger populations (Edmonds and Kennedy 2017:142).

Mixed methods approach	The goal of mixed methods of research is to address a research issue by combining aspects of qualitative and quantitative research (Creswell 2014: 215).
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3.2.1 Quantitative research method

A quantitative research method was used in this study based on the study population and results. The study was conducted using structured questionnaires as it is the best way to recognize individuals' experiences, viewpoints, emotions, understanding of the topic being researched and the rationale for their perceptions of clinical service quality in a private and a public radiology facility (Cresswell 2009: 22). This enabled the researcher to produce objective data that can be clearly communicated through statistics and numbers, in a systematic approach enabling someone else to replicate the study.

The plan or framework for conducting a research study is known as the research design, which involves describing the general strategy and methods that will be utilized to gather and analyze data to provide answers to research questions or test hypotheses (Creswell 2009: 22). Cresswell (2009: 22) further stated that there are five different quantitative research designs, namely experimental, known as quasi-experimental and true experiment research designs and non-experimental known as descriptive, survey and correlational. Table 3.2 describes the types of quantitative research designs.

Table 3.2: Types of quantitative research designs

Quantitative research design	Type of research design	Description
Experimental	Quasi-experimental	Seeks to demonstrate a cause-and-effect relationship between an independent and dependent variable, just like a true experiment does (Khanday 2019: 371)
	True experiment	The process of gathering two or more variables, comparing them and testing them in controlled settings (Khanday 2019: 371)
Non-experimental	Descriptive	A method used to ascertain the features of a population or specific phenomenon (Thyer 2010: 120).
	Survey	A method of gathering data from a sample of people by having them answer questions through online portals, paper surveys, telephonic surveys and one-on-one interviews (Asenahabi 2019: 81).
	Correlational	Examines the correlations between variables without including any control or manipulation on the part of the researcher (Asenahabi 2019: 81).

Asenahabi (2019: 77) mentioned that a properly constructed research study should have a specific and well-defined research topic, a thorough plan for gathering data, and a process for analyzing and interpreting the findings. To perform a scientifically rigorous study that will yield objective, trustworthy, valid and generalizable results, a well-planned research design is essential, at the same time allowing for some degree of flexibility (Asenahabi 2019: 77). Therefore, the current research study implemented a quantitative research method using a descriptive research design.

3.2.2 Descriptive research design

Understanding a phenomenon, circumstance or population is the objective of descriptive research, which does not need the manipulation of certain variables (Thyer 2010: 120). Instead, it just looks to measure and observe the variables to investigate them (Thyer 2010: 120). The descriptive research design is one of quantitative research designs employed to try and pinpoint traits, groups and patterns (Creswell 2009: 22). A descriptive research approach was chosen for this research study to increase the likelihood of generating data that offers a reliable response to the research topic. This approach also offered the chance to learn the attitudes, ideas, opinions and judgments of individuals about clinical service quality in private and public radiology healthcare.

3.3 RESEARCH PARADIGM

A research paradigm is described by Park, Konge and Artino (2020: 690) as a technique, model or pattern for conducting research. Ugwe, Ekere and Onoh (2021: 117) added that a research paradigm consists of a collection of concepts, viewpoints or comprehensions that allow for the operation of theories and practices. Three components of research paradigms can be used in research, namely:

- Ontology (The study of 'what is reality?') - Al-Saadi (2014:2) stated that ontology focuses on the nature of one's beliefs about reality, addressing whether a person lives in one reality, several realities, or none at all. The study reflects two different societies that exist simultaneously and coherently.
- Epistemology (How does one arrive at reality?) – The area of philosophy that investigates the nature of knowledge and the methods used to obtain and verify it (Al-Saadi 2014:2). The reality of the study is highlighted by the nature of the different societies represented in the different populations in the study, the private sector, which involves the above- average group of individuals in society and the public sector, which involves the below-average group of individuals in society.
- Methodology (How to approach finding an answer/solution in reality?) - Focuses on how people explore their surroundings and verify the information they learn (Al-Saadi 2014:2).

There are four basic types of research paradigms, namely positivism, interpretivist or constructivist, pragmatism and post-positivism.

Table 3.3: Four basic types of research paradigms

Research paradigm	Description
Positivism	Park, Konge and Artino (2020: 690) explained that the positivist paradigm is closely associated with quantitative methods of data collection and is based on measurement and reason. Moreover, information may also be discovered by objective, quantifiable and neutral observation of behavior, action or response.
Interpretivism/constructivism	According to Kawulich (2012: 9), the foundation of interpretivism is the idea that reality is socially created, multifaceted and subjective, implying that one can only comprehend a person's reality by their own experience of it, which may differ from another person due to the influences of their social or historical background.
Pragmatism	This is a function of the study question. Kawulich (2012: 13) states that depending on the specifics of the research problem, pragmatics may combine positivism and interpretivism in a single investigation. According to Creswell (2009:27-28), this approach to solving problems and the best research methods is those that help find the best solution to the research topic.
Post-positivism	Politics, passion and values are the main topics of post-positivism. Park, Konge and Artino (2020: 690) indicated that it is believed that reality is multifaceted, arbitrary and psychological. Kawulich (2012: 12) states that the paradigm looks for facts and evidence that, when it comes to phenomena, are legitimate and trustworthy, but not when it comes to generalization.

3.3.1 Positivist research paradigm

A positivist research paradigm was chosen for this study as it allowed the researcher to determine, understand information and consider different factors such as behavioral aspects based on participant experiences of services in radiology. The reality of the study was described based on the interpretivist researcher's beliefs and assumptions.

3.4 STUDY LOCATION

In a research project, the site of study refers to the actual place where the research is carried out. This could be a particular structure, neighborhood, city, state or nation, according to Mohabir (2019: 33). Mohabir (2019: 33) goes on further to indicate that the study site should be explicitly disclosed in the methods part of the research article because it can have an impact on the study's findings. Ethekewini Heart Hospital (Private) and King Dinuzulu Hospital Complex (Public) were the two selected locations based in KZN, eThekewini district. Both hospitals were chosen as they are establishments with large well-recognized specialized radiology facilities. The population attending both the private and public facilities was multiracial and of various age groups and genders. The population of elderly patients attending private and public radiology facilities was also dependent on geographical area and socio-economic status, hence it was difficult to estimate the exact elderly population attending private and public radiology facilities.

3.5 SAMPLING METHOD

Willie (2022: 521) stated that the target population is the entire population or group that a researcher is interested in researching and analyzing. A sampling frame is then drawn from this target population. This population can be characterized by several factors such as location, age, background etc. Furthermore, it is important to understand the difference between a population and a sample and identify the target population of one's research as differentiated below:

- The population according to Willie (2022: 521) is the whole group that the researcher is trying to infer something from. The total average population used in this study is an average of 100 patients who fall into the elderly patient category.

- The sample is the particular population from which the researcher will draw data (Willie 2022: 521). The sample population used in this study were 40 elderly individuals in private and public radiology facilities.

It is not possible to collect data from every member of a group of individuals when conducting a study on them. Instead, the researcher chooses a sample. Shukla (2020: 5) states that this refers to the population that will actually take part in the study. The sampling procedure denoted by Shukla (2020: 6) and Willie (2022: 521) is what one will use to choose a sample that is typical of the entire group to make meaningful inferences from one's results. Shukla (2020: 6) indicated two main kinds of sampling techniques that can be utilized in a research study, which are probability sampling and non-probability sampling. Hence, a convenient purposive sampling method was used, which is a form of non-probability sampling chosen for this study. Nikolopoulou (2023: para. 1 line 1) indicated that participants who are most easily accessible to the researcher are simply included in a convenience sample.

Due to a lack of formalized monthly statistics that fall under geriatric imaging, the target population size was estimated using a combination of preliminary site assessments and expert consultation. Discussions with the chief radiographers at the public radiology facilities and venue managers at the private radiology facilities indicated that each site serves an average of 100 elderly patients per month (60 years and older). This baseline population of ($N = 100$) was used to determine the sample size. Using standard statistical formulas for finite populations (via an online sample size calculator) with a 95% confidence level and a 5% margin of error, the required sample size was calculated as 80 participants. To ensure equal representation across healthcare sectors, a stratified sampling approach was applied, targeting 40 elderly patients from the private radiology facility and 40 from the public radiology facility. Key characteristics of the targeted population that the researcher tried to employ to address the research topic was the inclusion and exclusion criteria, which are features or factors that qualify or disqualify the recruited group from participating in the study (Nikolopoulou 2023: para. 1 line 1). The inclusion and exclusion criteria for this study are listed below.

3.5.1 Inclusion criteria

- All elderly patients visiting the private and public Radiology facility in eThekweni

are being researched.

- Individuals 60 years and older.
- All gender and ethnic groups; and
- Individuals who are willing to participate in the study.

3.5.2 Exclusion criteria

- Cognitively impaired patients.
- Individuals younger than 60 years of age; and
- Individuals accompanying a patient who is booked for an examination.

3.6 DATA COLLECTION TOOL

The systematic method of gathering observations or measurements is known as data collection (Kabir 2016: 3). The data collecting instrument used to obtain data from the elderly individuals under investigation is discussed below, as well as the pilot study conducted to ensure the tool's validity and reliability.

3.6.1 Questionnaires (Annexure J)

Kabir (2016: 3) further states that questionnaires, invented by Sir Francis Galton (1822 – 1911), are frequently used as data collection instruments in research projects, either as the sole information source or in mixed-method studies in conjunction with other methodologies. Ranganathan and Caduff (2023: 152) explain that a research questionnaire is a tool for gathering data that consists of a set of questions or items designed to gather information from respondents in order to understand their knowledge, beliefs, attitudes and behavior. However, the way a questionnaire is created, used and verified determines its quality and accuracy (Ranganathan and Caduff 2023: 152). Kabir (2016: 3) indicates that there are five steps in developing a questionnaire, including recognizing the research aim and goal of the questionnaire, defining the target respondents, creating the questionnaires, selecting the type of questions, designing the question arrangement and overall layouts, and lastly conducting a pilot study. According to Ranganathan and Caduff (2023: 154 – 155), the questions in a questionnaire should not be leading, loaded or assumptive, double negative, double-barreled or ambiguous.

The data collection tool used in this study will be self-developed questionnaires containing open-ended questions. The questionnaires will contain two sections: the first being pertaining to demographic information and the second directed at the quality of the clinical services expected/experienced by the elderly patient. The questions will be formulated using the five dimensions of the SERVQUAL model, namely reliability, responsiveness, tangibles, empathy and assurance, and will be used in conjunction with the six domains (autonomy, access, communication, confidentiality, dignity and prompt attention) derived by the World Health Organization to quantify the clinical service quality received by elderly individuals. The questions will be well put together, kept to a minimum, clear, concise and to the point. The questionnaires will be compiled in English and Isizulu. Therefore, a radiology department patient liaison officer who is fluent in Isizulu will be present to assist in the interpretation of the questionnaires.

3.6.2 Pilot study

In order to prepare for a larger study, a pilot study is done to test research protocols, data collection instruments, sample recruitment strategies and other research techniques (Yin 2011: 36). Questionnaires should be pilot tested as it not only assesses validity and reliability, but also how long it takes to complete the questionnaire and whether any questions need to be re-worded because they are unclear or misleading (Ranganathan and Caduff 2023: 155). In this research study, a pilot study was carried out on a total of four elderly individuals. Whilst two elderly individuals were from the public Radiology facility, the other two were from a private facility. These individuals were chosen due to their unpredictable backgrounds, reading levels and skills to prevent selection bias. Respondents who are typical of the general population are necessary to guarantee validity and reliability in this research study. The elderly individuals were randomly selected from the Radiology facilities according to the sample criteria. The respondents were provided with a letter of information and an explanation of what they were required to do by the researcher. Informed consent was obtained before they responded to the questionnaire. The pilot study was completed on 12 November 2024. The questionnaire took approximately 15 minutes to complete. The completed questionnaires verified that they found the questions easy to understand. The questions where neutral was selected as a response indicated that they were unsure of the answer, and they preferred to be

neutral about their response to that particular question. Hence, no changes were made to the questionnaires. A report on the results of the pilot study was sent to IREC for final study permission after the researcher expressed satisfaction with the final collecting instrument based on the questionnaire feedback.

3.7 DATA COLLECTION PROCESS

A convenient sampling technique of all the elderly patients were implemented to collect data. A permission letter was submitted to the District Research Co-Ordinator to pursue this research study. Permission letters were also submitted to the relevant hospital managers and thereafter the radiology companies' HR departments, requesting to conduct research in those facilities. Once permission was attained, the researcher physically attended the facility to hand out the questionnaires. The recruitment process was based on the inclusion criteria, which included individuals visiting the radiology department only, individuals over the age of 60 years old, all gender and ethnic groups and lastly, individuals who were willing to participate in the study.

Individuals were identified in the reception or waiting area of the radiology department. Those who fit the category were taken aside to confidentially introduce the study and brief them on the research process. Once the relevant information was explained to the patient, permission was requested. Each questionnaire was completed in a private area with no one else present besides the participant and researcher, particularly in the venue manager's office. No individual was allowed to take the questionnaire away. Therefore, it had to be completed at the end of the data collection process.

3.8 DATA ANALYSIS

Data analysis is the process of modifying, processing and cleaning raw data in order to obtain useful, pertinent information that supports commercial decision-making (Kabir 2016: 63). Numerous data analysis techniques are available, and they all fall under one of the two main categories of qualitative analysis or quantitative. In this research study, data will be gathered through surveys, and the content of each survey will be examined through the lens of descriptive analysis. Since descriptive research

collects measurable data for the statistical analysis of a population sample, it might be quantitative in nature, according to Creswell (2009: 29). Surveys, polls and experiments can be used to find patterns, linkages and trends in these numbers across time, advises Creswell (2009: 29). It helps one to understand the details of one's sample. To provide concrete numerical data, the mean, median and mode are calculated, then the standard deviation and variance (Creswell 2009: 29). From the completed questionnaire guide, the results were collated and then analyzed using the latest version (26) of SPSS (Statistical Package for the Social Sciences). Statistical tests play a crucial role in research by validating study findings, analyzing results and evaluating hypotheses and drawing conclusions regarding data (Ranganathan 2021: 184). Ranganathan (2021:184) further states that there are statistical methods for determining whether relationships or discrepancies between variables in a sample are pure chance or likely to occur in the larger population. For this study, several statistical methods were used to gather data and produce reliable results. A t-test can be used to identify any differences between patients attending private and public Radiology facilities and demonstrates the differences between their expectations and experiences of clinical service quality. The data were then graphically demonstrated using graphs. The results from the data were analyzed by a statistician and a researcher. The statistical tests used in this study to examine the data are listed below. An explanation of these tests may be found in Chapter 4.

- **Descriptive statistics** -The characteristics of a data set, which is a collection of observations or answers from a sample or the full population, are calculated, compiled and arranged using descriptive statistics (Dong 2023: 16).
- **t-test** - Developed in the 19th century by Karl Pearson, William Gosset and R. Fisher, this is one of the most widely used hypothesis tests in statistics to ascertain whether there is a statistical difference between two sample means or between the sample mean and the population mean (Al Kassab and Majeed 2022: 13).
- **One-sample t-test** – Uses the t-test to determine whether the population deviates from a fixed value, according to Al Kassab (2022: 135).
- **Paired samples t-test** - A statistical method for comparing the means of two related groups is the paired samples t-test, sometimes referred to as the dependent samples t-test (Talikan *et al.*, 2024: 943 – 944).
- **Independent samples t-test** - Two independent groups' means are compared

using the independent samples t-test, sometimes referred to as the two-sample t-test, to ascertain whether there is a statistically significant difference between them, according to Talikan *et al.* (2024: 943 – 944).

- **Analysis of Variance Model (ANOVA)** - ANOVA is a statistical test known as the analysis of variance and is used to ascertain whether the means of three or more groups differ significantly from one another (Kim 2017: 22).
- **Cronbach's alpha** - Taber (2017: 1273) indicates that the internal consistency (reliability) of a group of scale or test items is measured by Cronbach's alpha.
- **Mann Whitney U test** - A Mann Whitney U test is a non-parametric hypothesis test used to compare two independent groups and is also known as the Wilcoxon rank sum test by statisticians, according to Nachar (2008: 13 – 14).

3.9 VALIDITY AND RELIABILITY

In quantitative studies, validity and reliability are two key ideas that guarantee the precision and coherence of the study findings, according to Middleton (2019).

3.9.1 Reliability

According to Heale (2015), reliability is the consistency with which a method measures something. A measurement is deemed trustworthy if the same outcome can be reliably obtained using the same techniques in the same situations (Heale 2015). There are four types of reliability, namely test – retest reliability, internal consistence, parallel-form reliability and inter – rater reliability. Table 3.4 depicts the types of reliability below.

Table 3.4: Application of reliability types to the research instrument

Type of Reliability	Description	Application
Test – retest reliability	Refers to how consistently the same test yields the same results when given to the same group of participants at various dates (Suruku and Maslakci 2020: 2707).	Not applicable because elderly radiology patients are assessed during their specific clinical visits, re-administering the questionnaire at a later date is unfeasible due to attrition risks, altering health conditions, and recall bias.
Internal consistency	Suruku and Maslakci (2020: 2710) indicated that internal consistency describes how well a test or questionnaire measures the same construct through its items or questions.	This is the primary reliability measure for this study. The questionnaire data will be statistically analyzed using Cronbach's alpha coefficient. A value of 0,70 or higher will be used as the benchmark to confirm that the items within each section consistently measure the intended healthcare variables.
Parallel – forms reliability	Refers to how consistently the same test's results hold up when given to the same group of participants in two different versions (Mohajan 2017: 12)	Not applicable. This study utilizes one singular, standardized questionnaire to evaluate both private and public radiology services, ensuring no variation exists between instrument versions.
Inter-rater reliability	Mohajan (2017: 13) states that inter-rater reliability refers to the consistency of the findings when various raters or observers keep an eye on the same behavior or phenomena.	While the survey is self-administered by the patients, researchers bias during data entry is mitigated by using standardized coding protocols

		and electronic entry checks to ensure consistent data handling.
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3.9.2 Validity

Validity refers to the degree to which the research measures what it seeks to measure (Heale 2015). Heale (2015) further states that when performing research of the highest caliber, it is imperative to guarantee validity and dependability because these build trust in the conclusions and findings derived from the data. There are four types of validity for quantitative research methods, namely content validity, criterion validity, face validity and construct validity, as shown in Table 3.5 below.

Table 3.5: Application of validity types to the research instrument

Type of validity	Description	Application
Content validity	To determine whether a test can accurately capture the various facets of a particular construct, content validity is employed, according to Edmonds and Kennedy (2016: 7). The content of the survey, test or other measurement technique employed must include the pertinent and essential elements of the subject it is intended to assess in order to produce valid results (Edmonds and Kennedy 2016: 7).	The questionnaire items were directly derived from a comprehensive review of existing, peer-reviewed literature. Furthermore, the draft was submitted to an expert panel (including the research supervisor and senior radiology personnel) to verify that all critical dimensions of public and private radiology services were represented.
Criterion validity	When assessing the relativity of one's test results, that is, how closely the results of one test match those of another test, criterion validity is essential (Baumgarten 2012: 4).	Criterion validity was deemed not applicable to this study as the questionnaire is a new descriptive tool

Face validity	Face validity, which is regarded as a more subjective and informal kind of evaluation, is used to evaluate how acceptable the content of a given exam appears on the surface, according to Baumgarten (2012: 4). It appears to be relatively comparable to content validity (Baumgarten 2012: 4).	The initial questionnaire draft was subjected to a pilot study with 3 to 5 respondents typical of the target population. This ensured the layout, language, and formatting were clear, acceptable, and easily interpreted by elderly patients.
Construct validity	Edmonds and Kennedy (2016: 7) explain that construct validity refers to a quality or idea that is not directly observable, such as happiness, satisfaction, depression, etc. It is an excellent way to ensure that the measurement technique is in line with the construct one wants to assess (Edmonds and Kennedy 2016: 7).	The questionnaire items were operationalized based on validated theoretical frameworks found in existing radiology and healthcare quality literature. This guaranteed that the questions accurately measured the specific underlying constructs of interest rather than confounding variables.

3.10 ETHICAL CONSIDERATIONS

The study of morality and the different moral judgments that need to be considered in research is generally referred to as ethics (Yip, Han and Sng 2016: 684). Ethical clearance was attained from the Institutional Research Ethics Committee prior to conducting the study. The approval was granted on the 28 March 2024, reference number IREC 210/24. According to Goodyear, Krlieza-Jeric and Lemmens (2007: 624), there are several historical events of misuse carried out in the name of medical research, well known amongst which was the mistreatment of the Nazi prisoners that at the time stunned the world and led to the formulation of the Nuremberg Code in 1947, which was created to stop similar incidents from happening again. Ghooi (2011: 74) notes that the Nuremberg Code established the first global code of ethics for clinical research, which recognized standards for studies involving human participants and outlined ten specific guidelines that researchers must adhere to.

This includes the requirement of pre-clinical data that must be obtained before conducting human experiments; the right of subjects to withdraw from the study at any moment; and a ban on studies that could cause significant harm or the death of the subject (Ghooi 2011: 74). However, unethical research procedures persisted despite the development of the Nuremberg Code. Consequently, the 18th World Medical Association General Assembly eventually adopted a set of guidelines known as the Declaration of Helsinki in 1964, which consisted of thirty-two principles, as indicated by Goodyear, Krleza-Jeric and Lemmens (2007: 624). These guidelines place strong emphasis on vulnerable populations, informed consent, data confidentiality, and the need for an ethics committee to examine a protocol that includes the study's scientific justifications (Goodyear, Krleza-Jeric and Lemmens 2007: 624).

According to Avasthi *et al.* (2013: 89), medical atrocities persisted despite the Declaration of Helsinki's uproar in the medical profession, which led to the publication of the Belmont Report in 1979 and the establishment of rules governing ethics and research involving human subjects in the United States. Nagai, Nakazawa and Akabayashi (2022: 158) and Avasthi *et al.* (2013: 89) state that the "International Ethical Guidelines for Biomedical Research Involving Human Subjects" were developed in 1982 by the Council for International Organizations of Medical Sciences in collaboration with the WHO in response to the pharmaceutical industry's growing interest in conducting research experiments in developing and underdeveloped nations. The four Beauchamp and Childress principles (1979) - autonomy, beneficence, non-maleficence and justice—have had a significant impact on medical ethics and are essential to comprehending how ethical evaluation is done in the industry today, according to Shea (2020: 388). Shea (2020: 388) further states that acting consciously after receiving enough knowledge and time to process it is what it means to respect autonomy, whilst the goal of beneficence is to advance both society and the patient's well-being. Conversely, Avasthi *et al.* (2013: 89) indicate that non-maleficence implies first 'do no harm', which can be achieved by careful decision-making and having adequate training. The Beauchamp and Childress principles are discussed below.

3.9.3 Autonomy

In the context of healthcare, autonomy is typically defined by Varelius (2006: 377-378)

as the ability of competent adults to make decisions about their own healthcare. The necessity to obtain the patient's informed permission before beginning any inquiry or treatment is based on this premise. Varelius (2006: 19) states that the strongest application of the principle is when patients assert their autonomy by declining life-supporting care. Florijn (2022: 9-10) mentions that two conditions must be met for a decision to be considered autonomous. Firstly, the person must possess the necessary innate abilities for self-government and be unrestricted by outside forces and secondly, in a medical setting, the subject has the mental capacity, the necessary knowledge and the volition to make the choice. According to Singh and Ivory (2015: 1-2), a person's capacity for independent decision-making might alter during their lifetime because of events like disease and disability. In order to treat the participants autonomously, the researcher ensured that a complete explanation of the research study was provided to the participant prior to obtaining informed voluntary consent. This ensured that the decision to participate in the study was made knowledgeably and on their own will under the outlined conditions. Participants were informed that they had the right to withdraw from the study at any given time without any implications and that their rights, dignity and autonomy were to be respected at all times.

3.9.4 Beneficence

Miracle (2016: 225) emphasizes that according to the Belmont Report, an ethical approach to research incorporates the beneficence principle in which the investigator does a risk-benefit analysis to try to minimize harm and maximize benefits for human subjects. Cullity (2007: 19) explains that this guiding principle mandates not only the avoidance of damage but also the promotion of patients' welfare and benefits. Beneficence refers to the 'responsibility to do good' by offering the participants the greatest possible advantages while assuring their safety and causing the least amount of harm (Varkey 2021: 18). The researcher explained to the participants that their anonymity and confidentiality were to be respected throughout the research process as it is important that the participants felt safe during this process. Through the awareness of the elements impacting older patients' perceptions of clinical service quality in private and public radiology facilities, the participants were made aware of the immediate benefits that the research findings would have for them and the private and public radiology facilities. These results were then shared with the

appropriate organizations and regulatory bodies, thereby helping them to comprehend the care requirements of senior patients, particularly in radiology, thus enabling modifications to be made that would benefit the community of elderly patients as a whole, the individual participant and the Radiology industry going forward. All hardcopy results were kept completely confidential by the researcher in a safe place. The data was analyzed, all hardcopies of information was discarded in accordance with the Protection of Personal information Act, 2013.

3.9.5 Justice

Fairness and equal treatment for all individuals are required by justice in ethics (Varkey 2021: 20). As medical professionals, Miracle (2016: 226) states that it is one's responsibility to ensure that all patients receive fair treatment, regardless of whether they are participating in clinical trials or research. Furthermore, Miracle (2016: 226) mentions that patients still need to be taken care of even if they choose not to take part in clinical trials or research. The principle of justice promotes a sense of trust between the patient, researcher and/or healthcare provider (Anabo, Elexpuru-Albizuri and Villardon-Gallego 2018: 146). The inclusion and exclusion criteria were specifically followed in the participant selection process, and no particular attribute or background will be highlighted in the study, and no one viewpoint will be given preference. The researcher ensured that fairness was maintained in the study. The needs of the participant always came before the objectives of the study. Before the study began, informed voluntary consent was acquired for participation.

3.10 CHAPTER SUMMARY

Since the research design and methodology serve as the study's outline, it is obvious that this is crucial to every research project since it develops a workable, precise and well-defined plan that the researcher must follow in order to get reliable, objective data whilst taking the least expensive path. This chapter presents how the researcher used a descriptive researcher design and a quantitative research method to get answers to the required research questions. Structured questionnaires were used to collect data. Every choice the researcher made about the sample, location and methods for gathering and analyzing data has also been explained. The steps used to obtain ethical permission to conduct the study have been described, along with an explanation of the ethical and reliable guidelines followed. The research results from

the questionnaires of the data gathered will be shown in the following chapter. Chapter 4: Presentation of The Findings to follow on the next page.

CHAPTER 4

PRESENTATION OF THE FINDINGS

4.1 INTRODUCTION

This chapter highlights the statistical tests used to analyze the quantitative data obtained through the questionnaires, followed by a detailed section-by-section breakdown of the dataset. The empirical findings are visually presented using pie charts, bar graphs, and descriptive tables. To ensure a comprehensive evaluation of healthcare delivery, the data is structurally framed around the five traditional dimensions of the SERVQUAL model: tangibles, reliability, responsiveness, assurance, and empathy. Furthermore, two additional dimensions (communication and accessibility) are intentionally integrated into this framework to capture structural and clinical realities specific to geriatric imaging. Communication is included as a distinct domain because elderly patients frequently experience age-related sensory declines or heightened anxiety regarding radiation exposure and complex positioning commands, making clear, tailored clinical dialogue crucial to their perception of care. Accessibility is included to evaluate the physical, structural, and geographic barriers essential in radiology departments, which directly impact elderly individuals facing age-related mobility constraints or navigating complex public and private infrastructure. Together, these seven dimensions facilitate a granular understanding of the unique factors that shape elderly patients' perceptions and experiences of clinical service quality within the Ethekewini district, ultimately providing an actionable foundation to improve and enhance geriatric clinical care.

4.2 STATISTICAL TESTS

Statistical tests play a crucial role in research by validating study findings, analyzing results, evaluating hypotheses and drawing conclusions regarding data (Ranganathan 2021: 184). Ranganathan (2021:184) further states that there are methods for determining whether relationships or discrepancies between variables in a sample are pure chance or likely to occur in the larger population. For this study, several statistical methods were used to gather data and produce reliable results. The purpose of these

assessments was to ascertain whether the experiences and expectations of clinical service quality amongst elderly individuals in private and public radiology facilities differed significantly.

4.2.1 Descriptive statistics

Descriptive statistics are used to calculate, compile, and systematically arrange the characteristics of a dataset, providing a clear summary of the observations collected from a sample or population (Dong, 2023: 16). In quantitative research, utilizing descriptive statistics to outline response characteristics—such as the profile of a single variable or the baseline relationship between variables—is the foundational first stage of data analysis (Kaliyadan and Kulkarni, 2019: 82). According to Dong (2023: 160), these statistics are broadly categorized into distributions, measures of central tendency, and measures of variability.

In this study, specific descriptive metrics are applied across these three categories to analyze the questionnaire responses from the elderly radiology patients. This first category is distribution and frequency distribution - Frequencies and percentages are used to summarize demographic characteristics (such as age, gender, and sector distribution between public and private facilities), making it simpler to observe data patterns when presented via tables and bar graphs (Kaliyadan and Kulkarni, 2019: 82). The second category is measures of central tendency - The mean (average score) is calculated for each survey item and overarching service domain (such as the SERVQUAL dimensions, communication, and accessibility) to pinpoint the central trend of patients' perceptions regarding service quality (Kaliyadan and Kulkarni, 2019: 82). The third category is measures of variability - The standard deviation is applied alongside the mean to measure the spread or dispersion of the responses. This indicates the level of consensus or variation in experiences among the elderly participants, demonstrating whether their perceptions are tightly clustered or widely scattered (Kaliyadan and Kulkarni, 2019: 82).

4.2.2 t-test

Developed in the 19th century by Karl Pearson, William Gosset and R. Fisher, the t-test is one of the most widely used hypothesis tests in statistics to ascertain whether there is a statistical difference between two sample means, or between the sample mean and the population mean (Al Kassab and Majeed 2022: 13). Al Kassab and

Majeed (2022: 13) further state that the t-test distinguishes between paired samples, independent samples and one sample.

4.2.2.1 One sample t-test

Researchers can use the one sample t-test to ascertain whether the population deviates from a fixed value, as explained by Al Kassab (2022: 135). This applied to the current study

4.2.2.2 Paired sample t-test

Talikan *et al.* (2024: 943 – 944) state that a statistical method for comparing the means of two related groups is the paired sample t-test, sometimes referred to as the dependent samples t-test. It specifically checks if there is a zero-mean difference between two sets of observations (Talikan *et al.* 2024: 943 – 944).

4.2.2.3 Independent sample t-test

Two independent groups' means are compared using the independent samples t-test, sometimes referred to as the two-sample t-test, to ascertain whether there is a statistically significant difference between them, according to Talikan *et al.* (2024: 943 – 944). Talikan *et al.* (2024: 943 – 944) state further that the two samples' means are compared in order to make this claim. If the difference is significant enough, it is presumed that the two groups are different.

4.2.3 The Analysis of Variance Model (ANOVA)

ANOVA is a statistical test known as the analysis of variance, used to ascertain whether the means of three or more groups differ significantly from one another (Kim 2017: 22). Kim (2017: 22) further states that it is a continuation of the t-test, which compares two groups' means. Rouder *et al.* (2022: 50) add that to determine if the observed differences are significant, ANOVA compares the variance within each group to the variance between groups. A two-way ANOVA employs two independent variables, whereas a one-way ANOVA utilizes just one (Rouder *et al.* 2022: 50).

4.2.4 Cronbach's alpha

Taber (2017: 1273) indicates that the internal consistency (reliability) of a group of

scale or test items is measured by Cronbach's alpha. Taber (2017: 1273) further explains that it is most frequently employed when a survey or questionnaire contains several Likert items that combine to form a scale, and one wants to ascertain the scale's reliability. In essence, it shows how closely related and consistently the elements on a scale measure the same underlying notion (Tavakol and Dennick 2011: 53 - 54). The likelihood that the items measure the same thing increases with a greater alpha value (Tavakol and Dennick 2011: 53 - 54).

4.2.5 Mann Whitney U test:

A Mann Whitney U test is a non-parametric hypothesis test used to compare two independent groups. It is also known as the Wilcoxon rank sum test by statisticians (Nachar 2008: 13 – 14). To ascertain whether there is a statistically significant difference between the medians of two groups, many analysts employ the Mann Whitney U test (Nachar 2008: 13 – 14). The following are two typical interpretations of a statistically significant result that can be found online, according to Kishore and Jaswal (2022: 199), the first one indicates that the groups are drawn from populations with varying distributions, whilst the second one indicates that the difference between the medians is substantial.

4.3 DATA COLLECTION TOOL

A structured, self-developed questionnaire was engineered as the primary data collection instrument for this study. While established tools such as the generic SERVQUAL questionnaire are widely accessible, a modified, self-developed instrument was necessary because standard service industry frameworks fail to account for the unique clinical, physical, and cognitive realities of geriatric radiology. Standard health evaluation tools do not explicitly capture dimensions critical to elderly patients in imaging environments such as navigating physical barriers with limited mobility (accessibility) or understanding complex breath-holding and positioning commands during scans (communication). Developing a tailored instrument ensured that the metrics directly reflected the specific service encounters of elderly individuals within both public and private radiology settings. To ensure comprehensive data coverage, the questionnaire was systematically structured into three distinct sections. Section A: Demographic Profile: Collected baseline

categorical data, including the participant's age, gender, educational level, and whether they received care at a public or private radiology facility. Section B: Expectations of Clinical Service Quality: Evaluated what elderly patients expected from an ideal radiology service before their appointment across seven operational domains (tangibles, reliability, responsiveness, assurance, empathy, communication, and accessibility) using a five-point Likert scale. Section C: Experiences of Clinical Service Quality: Mirrored the identical items from Section B to assess the patients' actual, real-time clinical experiences following their radiology procedures, facilitating a direct empirical gap analysis.

4.4 ANALYSIS OF DEMOGRAPHICS

Data gathering and the analysis of the general attributes of particular populations (age, gender, race, marital status, etc.) is known as demographics (Jones, Peter and Ruckle 2022: 1304). Furthermore, demographic information from research participants, according to Jones, Peter and Ruckle (2022: 1304), is crucial for assessing whether the participants in a particular study are a representative sample of the target population for generalization purposes.

4.4.1 Radiology facility:

Elderly individuals that were a part of the study were equally distributed across private and public Radiology facilities, namely private Radiology at 50% (n=40), and 50% (n=40) in public Radiology. This is depicted in Figure 4.1 below on the representation of the facility (n=40).

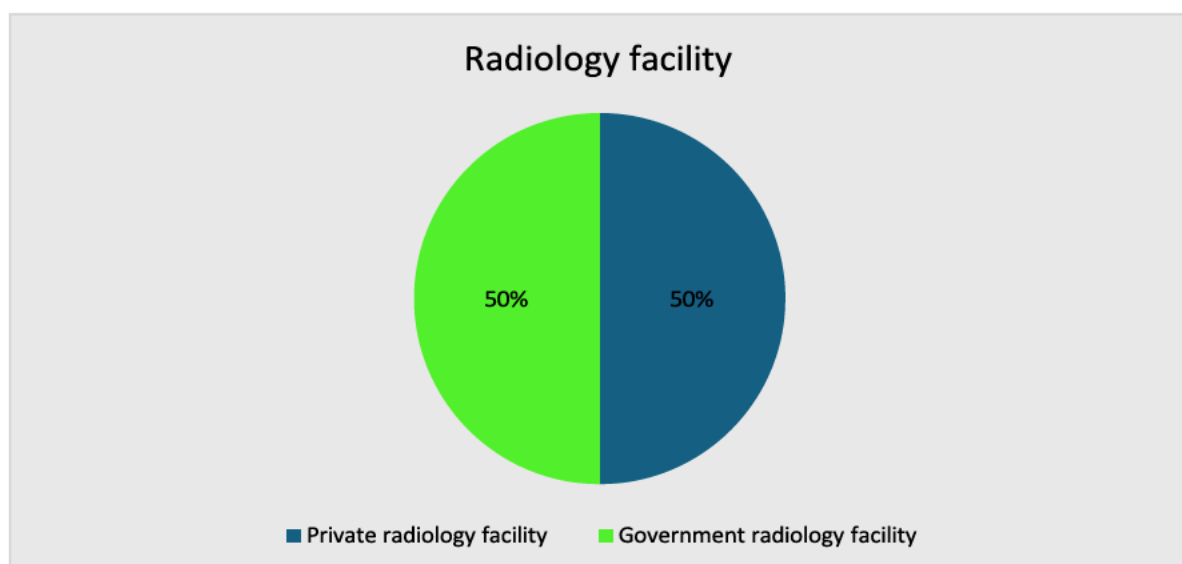


Figure 4.1: Representation of the facility (n= 40)

4.4.2 Marital status and age:

The data of age indicated that 43.8% of elderly individuals were between 60-69 years of age, 46.3% were between 70-79 years of age, whilst 10.0% were 80+ years of age. The marital status of elderly individuals demonstrated that 15.0% were single, 53.8% were married, whilst 31.3% were separated/widowed/divorced. This is demonstrated in Figure 4.2: The representation of marital status and age (n=40).

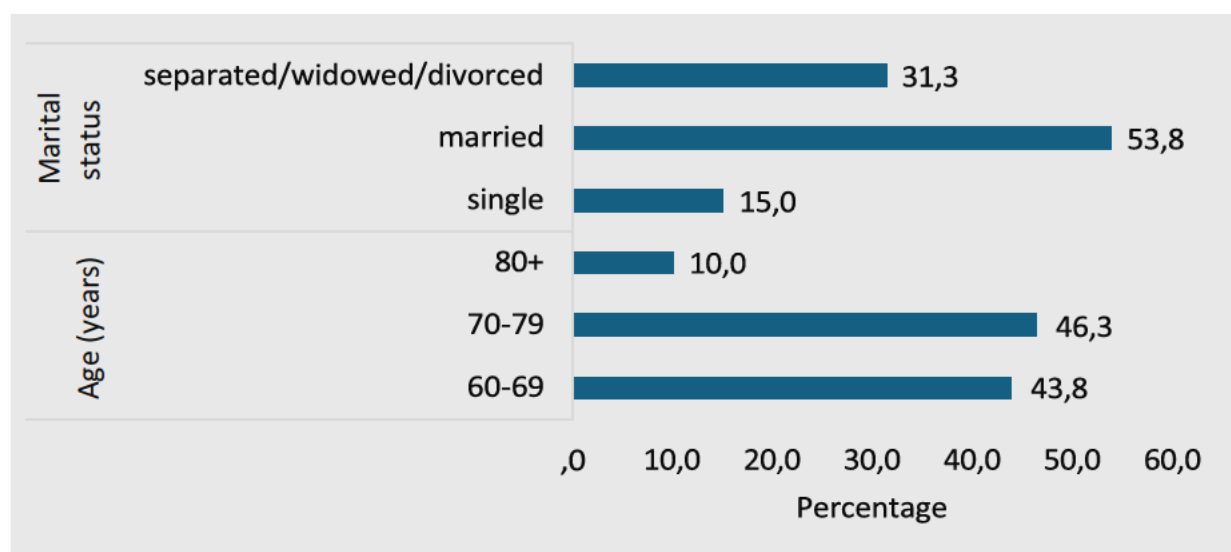


Figure 4.2: Marital status and age (n=40)

4.4.3 Mobility status:

The data on mobility status indicated that 80.0% of elderly individuals used private transport to acquire Radiology healthcare, whilst 20.0% used public transportation services. Almost 28.8% of elderly individuals were always accompanied whilst travelling, 30.0% were sometimes accompanied and 41.3% would travel alone. Additionally, 40.4% of elderly individuals required assistance whilst travelling and 44.7% needed company. Moreover, 14.9% of elderly individuals did not complete the question or chose not to respond to this.

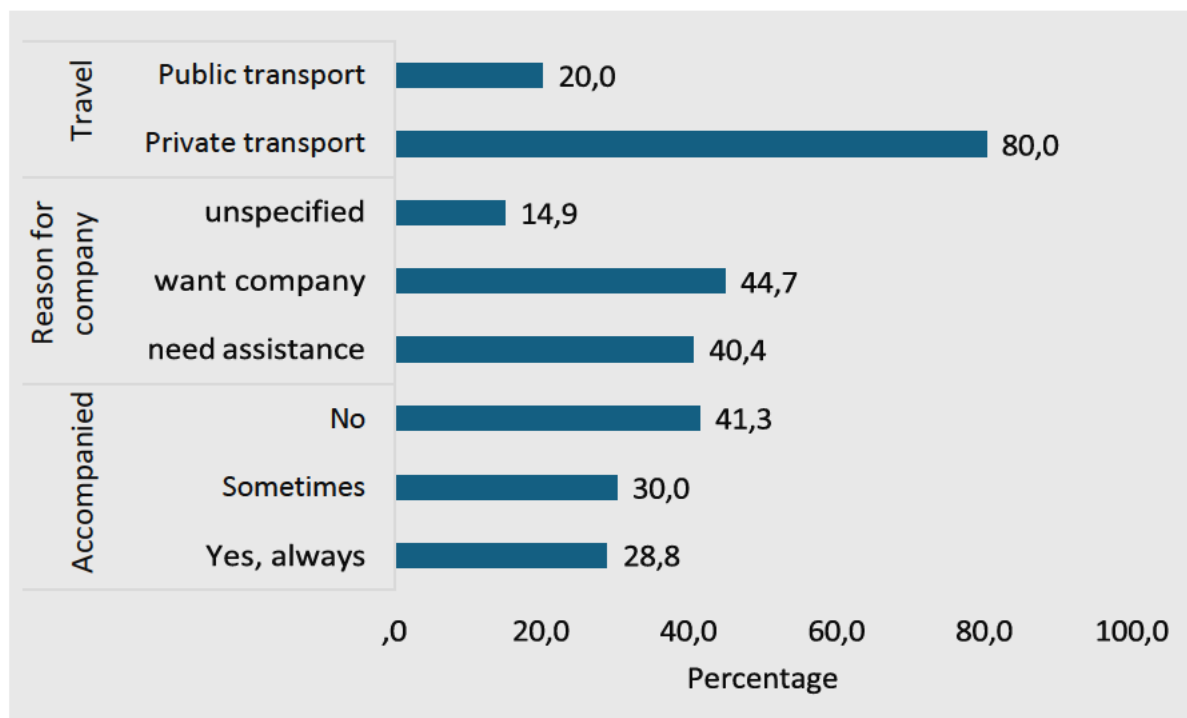


Figure 4.3: Mobility status (n=40)

4.4.4 Clinical status:

The data obtained on the clinical status indicated that 23.8% were inpatients and 75.0% were outpatients. Furthermore, 1.3% of elderly individuals did not complete this question or chose not to respond to this. A significant 63.8% of elderly individuals were on medical aid, whilst 36.3% were cash-paying patients. This suggested that a significant number of individuals were on medical aid even though attending private hospitals. Because the researcher sampled exactly 40 private elderly patients and 40 public elderly patients, if 100% of the private elderly patients used medical aid, that would only account for 40 individuals (or 50% of the total sample). Since the actual medical aid percentage is 63.8% (51 patients), the remaining 11 medical aid patients must have been sampled from the public radiology sector. Therefore, 27.5% of your public hospital sample (11 out of 40) were medical aid holders. The frequency of examinations amongst elderly individuals ranged from 7.5% (at least once a month) to 5.0% (at least every 4 months), 16.3% (at least every 6 months), 32.5% (at least once a year), 36.3% (less than once a year) and 2.5% of which did not answer the question or chose not to respond. About 53.8% of radiology visits were for routine examinations whilst 46.3% were for newly diagnosed examinations.

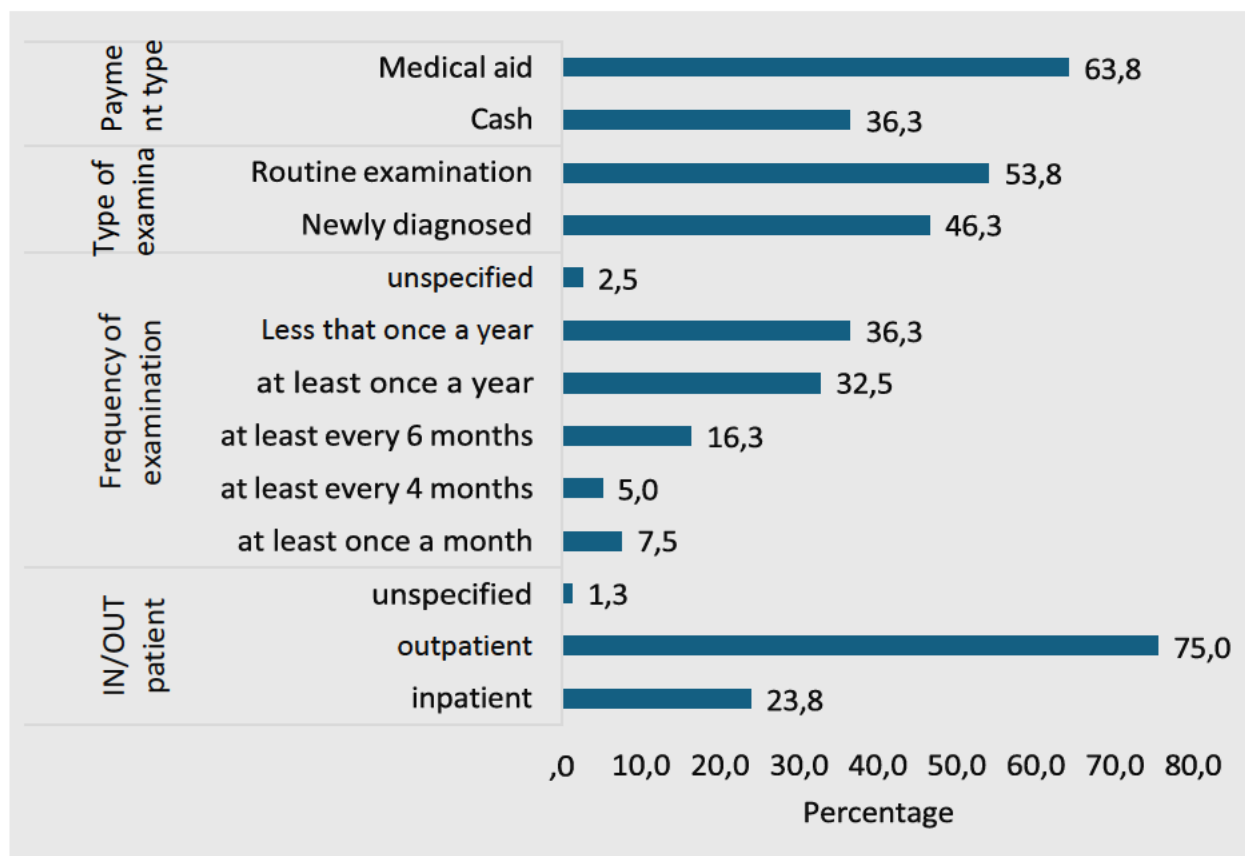


Figure 4.4: Clinical status (n=40)

4.5 ANALYSIS OF EXPECTATIONS AND EXPERIENCES

In this section, Cronbach's alpha and paired t-tests were used to analyze the data collected. Elderly individuals were given a series of questions relating to the experiences and expectations of the clinical service quality in private and public radiology facilities. The questions were designed with the five healthcare domains (tangibles, assurance, responsiveness, empathy and reliability) in mind. However, they include two other domains, namely accessibility and communication, which form an integral part of accessing the five domains. Every question assessed a distinct aspect to investigate the expectations and experiences of elderly individuals regarding the quality of clinical services in both public and private radiology facilities. The data collected from the questionnaires were analyzed in relation to each one of the five domains. However, it includes accessibility and communication and is illustrated in the tables that follow.

Each table provides a summary analysis of the number of participants (n), mean and the standard deviation separately for the experiences and expectations of the private and public facilities. The right side of the tables include the results of the paired t-tests, which tests if the mean (experience) is significantly different from the mean (expected). This is represented by the p-value. A p-value is defined by Andrade (2019: 210) as a statistical measure, which is automatically calculated by the SPSS system to compare observed data to a hypothesis explained. Andrade (2019: 210) further states that in an SPSS system, the p-value given as .000 is very small and documented as $p < .001$, and a p-value of .017 is indicated as $p = .017$, for example. It calculates the likelihood that under the null hypothesis, the observed outcomes will materialize (Andrade 2019: 210). Andrade (2019: 210) and Leo and Sardanelli (2020: 1 – 2) explain that the observed difference's statistical significance increases with a decreasing p-value, and a p-value of 0.05 or less is statistically significant. This merely indicates that, with a 95% confidence level, the particular outcome applies to the entire population rather than just the sample. When the p-value is high, it means that the findings only apply to the sample and not the entire population (Leo and Sardanelli 2020: 1 – 2).

Cronbach's alpha was then computed using alpha greater than or equal to .7 to determine the internal consistency of the overall domain. Internal consistency refers to a technique which determines whether a test or survey is accurately measuring what a researcher wants to assess, in this case is to look at its internal consistency dependability (Tang, Cui and Babenko 2014: 205). A composite variable is formed when alpha is greater than 0.7. A paired t-test analysis is then performed on the overall domain by calculating the average of the number of questions within each domain. Tangibles averaged 5 questions, reliability averaged 5 questions, responsiveness averaged 4 questions, assurance averaged 5 questions, empathy averaged 6 questions, accessibility averaged 4 questions and communication averaged 5 questions. These questions were all calculated to be above Cronbach's alpha of 0.7, which indicated that they were reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain. This is indicated in the Cronbach's alpha composite variable tables below under each domain.

A further paired t-test was then carried out on the overall domain to compare the mean agreement scores. Paired t-tests are statistical methods for comparing the means of

two related groups, known as the paired samples t-test and sometimes referred to as the dependent samples t-test by Talikan *et al.* (2024: 943 – 944). It specifically checks whether there is a zero-mean difference between two sets of observations (Talikan *et al.* 2024: 943 – 944). This would indicate if the mean agreement scores differed significantly for what the elderly individuals expect or what they experience. This is indicated in the paired t-test analysis tables for each domain below.

4.5.1 Analysis on Tangibles (Environment)

As described by Yarimoglu (2014: 83), tangibles refer to the physical infrastructure, such as buildings, structures, equipment and employees, both in terms of quantity and quality, that facilitates the provision of healthcare services. In this study, tangibles refer the patient perceptions of the ambiance of the radiology environment and the appearance of radiology staffing. In Table 4.1 on tangibles below, a paired t-test analysis for the “mean” agreement scores for both expectation and experience are indicated to distinguish if there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring tangibles, the mean agreement scores on what they expect of these things are significantly greater than the mean agreement scores on what they experience of these things. For elderly patients’ expectations, there was a significant agreement that radiology facilities have modern equipment (4.78), radiology amenities such as change rooms and rest rooms are hygienic and always well maintained (4.81), the physical layout of the radiology facility is appealing (4.62), the radiology personnel are appropriately and professionally dressed (4.75) and lastly, the radiology facilities make it easy for elderly patients to maneuver through (4.78).

Table 4.1: Paired t-test analysis on tangibles

TANGIBLES	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
The Radiology facility has modern equipment	80	4.33	.725	79	4.68	.495	-4.151	78	<.001
The Radiology amenities such as changing rooms and rest rooms are hygienic and always well maintained	80	4.18	.808	79	4.81	.426	-6.153	78	<.001
The physical layout of the Radiology facility is appealing	80	4.29	.732	79	4.62	.647	-3.620	78	.001
The Radiology personnel are appropriately and professionally dressed	79	4.49	.618	79	4.75	.493	-2.971	77	.004
The Radiology facility layout makes it easy for elderly patients to maneuver through	80	4.39	.665	79	4.78	.414	-4.408	78	<.001

Figure 4.5 below is a summary representation of the mean agreement and disagreement scores for each question under tangibles for expectations (indicated in blue) and experiences (indicated in green).

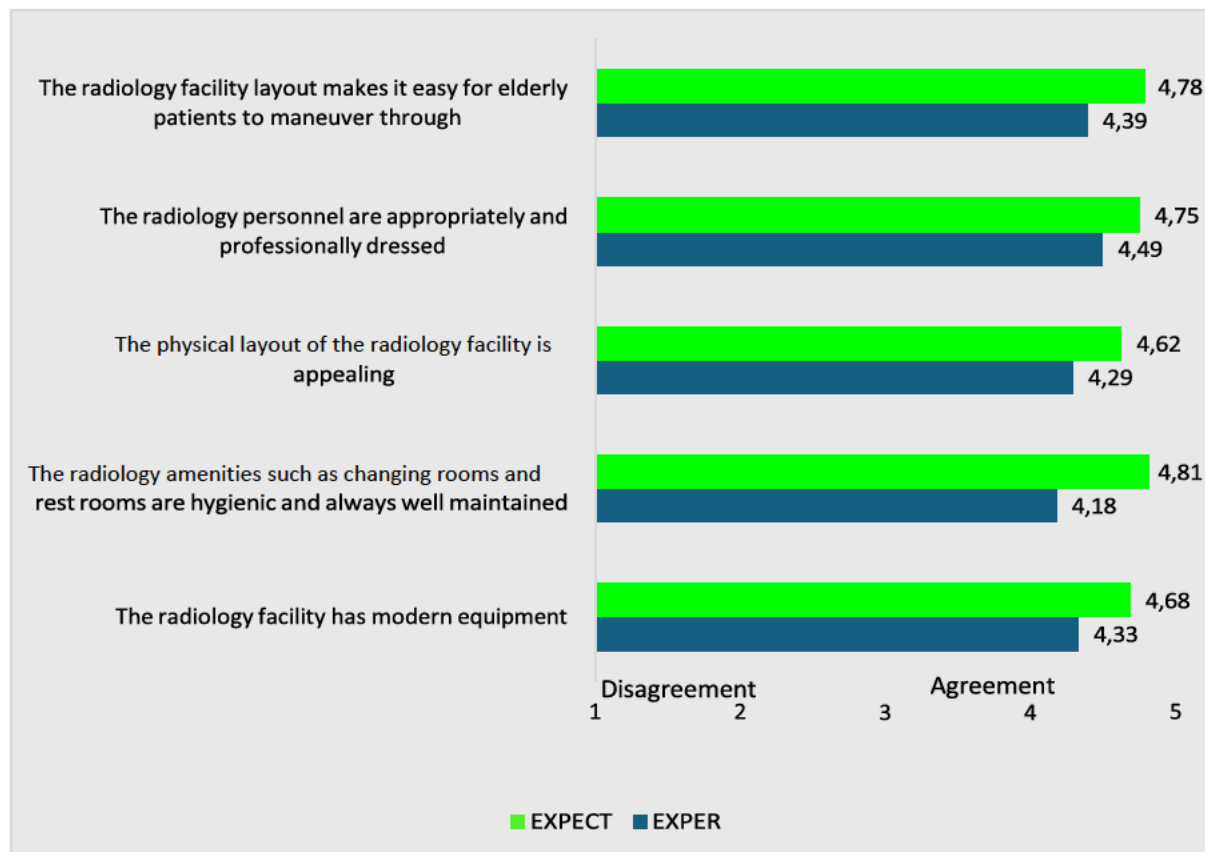


Figure 4.5: Representation of reliability (n=40)

Cronbach's alpha was then applied using alpha greater than or equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.2 below indicates that the Cronbach's alpha values for the experiences (0.928) and expectations (0.862) of the overall tangible domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.2: Cronbach's alpha composite variable tangibles

Tangibles	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_TAN	1 - 5	.928
EXPECTATION	EXPECT_TAN	1 - 5	.862

A further paired t-test was then carried out on the overall domain (tangibles) to compare the “mean” agreement scores for the experiences and expectations of elderly individuals. Table 4.3 on overall tangibles below indicates that the mean agreement score measuring what they expect in the tangible domain is significantly higher (4.73) than the agreement score measuring what they experience (4.34).

Table 4.3: Paired t-test analysis on overall tangibles

TANGIBLES	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	79	4.34	.623	79	4.73	.403	-5.225	78	<.001

4.5.2 Analysis on Reliability

According to Panteloukas, Asopo and Buwag (2012: 31), reliability is the capacity to continuously provide on-time, correct, truthful and dependable services. This entails maintaining precise records, assessing fees fairly and delivering the service on schedule (Yarimoglu 2014: 83). In this study, reliability refers to how consistent the Radiology appointment times are in terms of waiting periods, reliability of equipment, performance of Radiology examinations and effectiveness of results. In Table 4.4 on reliability below, a paired t-test analysis for the “mean” agreement scores for both expectation and experience is indicated. This is to distinguish if there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring reliability, the mean agreement scores that they expect these things are significantly greater than the mean agreement scores that they experience these

things. For elderly patients' expectations, there was significant agreement that the Radiology facility provides its services at the time it promises to do so (4.71), I can rely on the Radiology personnel doing their best to address my needs (4.75), the radiology facility keeps accurate patient records (4.77), radiology examinations are correctly performed the first time (4.84) and lastly, the radiology personnel check up on me during my examination/procedure (4.70).

Table 4.4: Paired t-test analysis on reliability

RELIABILITY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
The Radiology facility provides its services at the time it promises to do so	79	3.96	.940	79	4.71	.602	-7.510	78	<.001
I can rely on the Radiology personnel doing their best to address my needs	79	4.34	.677	79	4.75	.466	-5.225	78	<.001
The Radiology facility keeps accurate patient records	79	4.33	.843	79	4.77	.451	-5.534	78	<.001
Radiology examinations are correctly performed the first time	79	4.37	.737	79	4.84	.406	-5.695	78	<.001
The Radiology personnel check up on me during my examination/procedure	79	4.39	.668	79	4.70	.563	-4.048	78	<.001

Figure 4.6 below is a summary representation of the mean agreement and disagreement scores for each question under reliability for expectations and experiences.

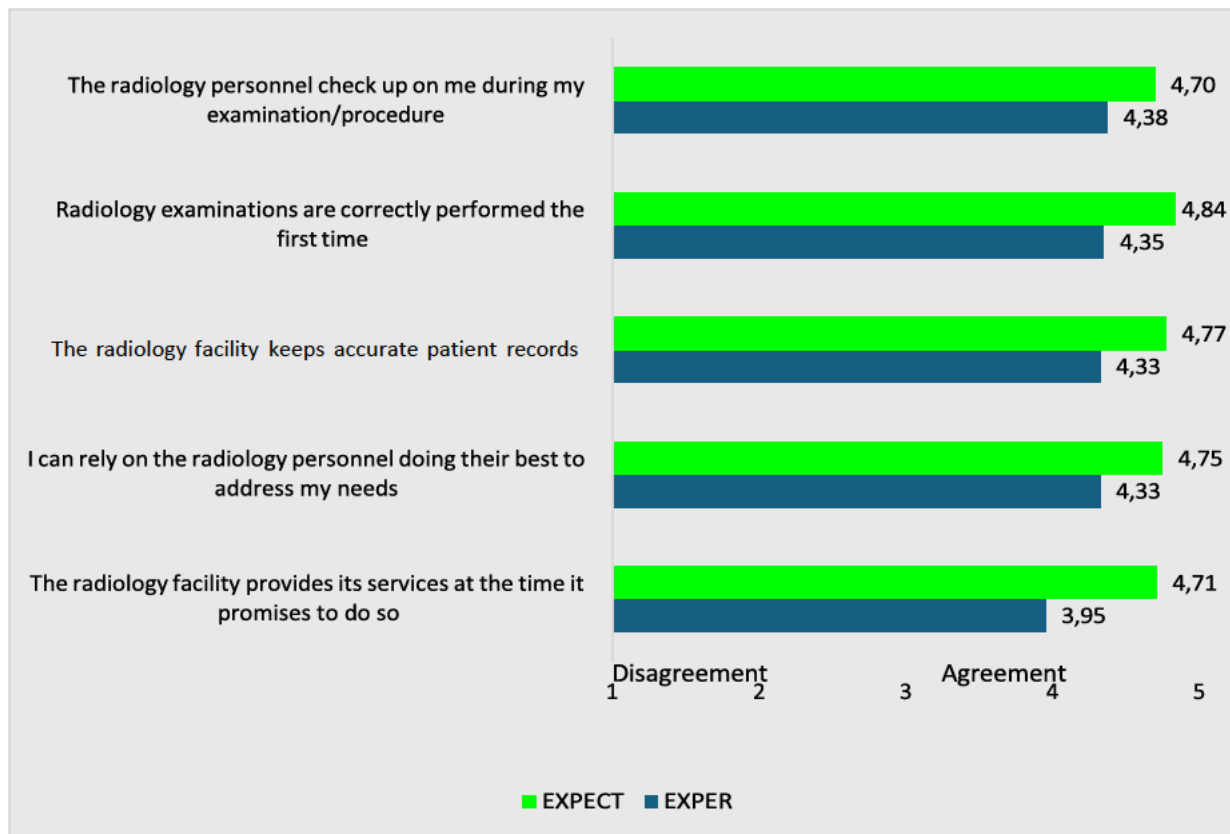


Figure 4.6: Representation of reliability (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to .07 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.5 below indicates that the Cronbach's alpha values for the experiences (0.893) and expectations (0.920) of the overall reliability domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.5: Cronbach's alpha composite variable reliability

Reliability	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_REL	1 - 5	.893
EXPECTATION	EXPECT_REL	1 - 5	.920

A further paired t-test was carried out on the overall domain (reliability) to compare the "mean" agreement scores for the experiences and expectations of elderly individuals. Table 4.6 below indicates that the mean agreement score measuring what they expect

(4.75) in the reliability domain is significantly higher than the agreement score measuring what they experience (4.29).

Table 4.6: Paired t-test analysis on overall reliability

RELIABILITY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	79	4.29	.650	79	4.75	.438	-7.320	78	<.001

4.5.3 Analysis on Responsiveness

According to Mosadeghrad (2012: 256), responsiveness refers to the reply to requests, feedback, questions and difficulties from customers in a timely manner, which is a sign of a company's commitment to providing customers with quality service. In this study, responsiveness refers to the Radiology department's ability to provide its services fast and effectively. In Table 4.7, a paired t-test analysis for the "mean" agreement scores for both expectation and experience are indicated to distinguish if there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring responsiveness, the mean agreement scores that they expect these things are significantly greater than the mean agreement scores that they experience these things. For elderly patients' expectations, there was significant agreement that the radiology personnel handle my queries and complaints directly and immediately (4.63), radiology personnel respond quickly and efficiently to my needs (4.61), emergencies are attended to with urgency (4.72) and radiology personnel show willingness to assist elderly patients (4.78).

Table 4.7: Paired t-test analysis on responsiveness

RESPONSIVENESS	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
Radiology personnel handle my queries and complaints directly and immediately	76	4.12	.094	76	4.63	.608	-5.132	75	<.001
Radiology personnel respond quickly and efficiently to my needs	75	4.12	.854	75	4.61	.613	-4.967	74	<.001
Emergencies are attended to with urgency	75	4.21	.104	75	4.72	.067	-4.691	74	<.001
Radiology personnel show willingness to assist elderly patients	76	4.37	.650	76	4.78	.479	-5.589	75	<.001

Figure 4.7 below is a summary representation of the mean agreement and disagreement scores for each question under responsiveness for expectations and experiences.

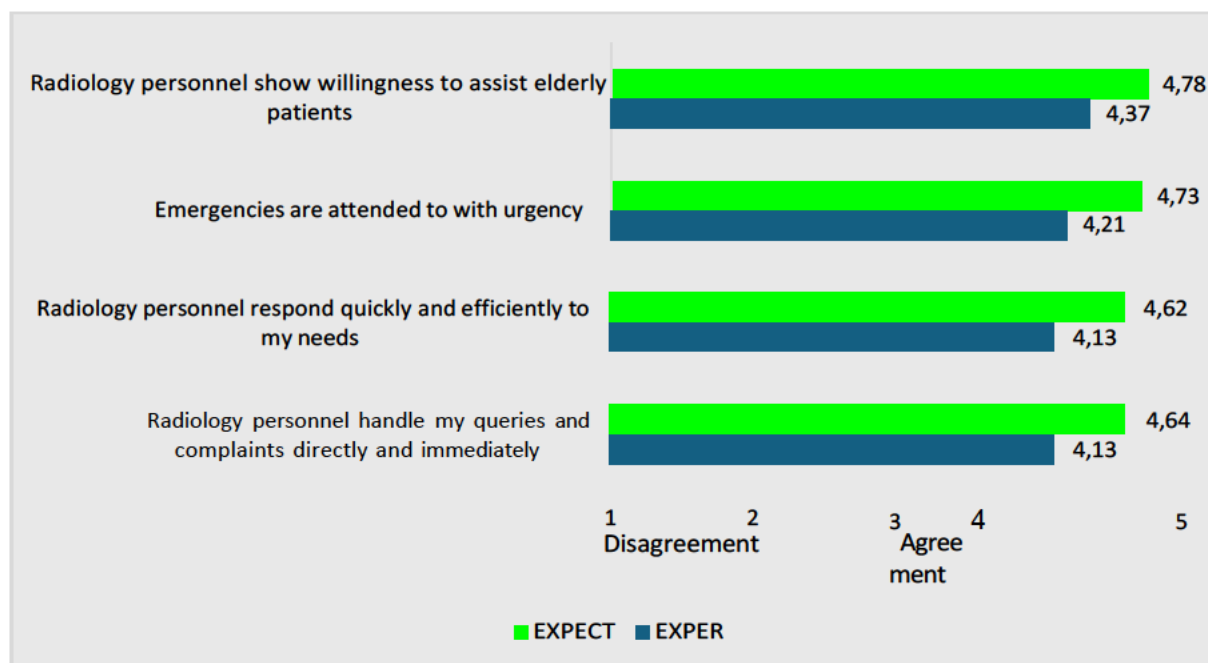


Figure 4.7: Representation of responsiveness (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed

when alpha is greater than 0.7. Table 4.8 below indicates that the Cronbach's alpha values for the experiences (0.904) and expectations (0.915) of the overall responsiveness domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.8: Cronbach's alpha composite variable responsiveness

Responsiveness	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_RES	1 – 4	.904
EXPECTATION	EXPECT_RES	1 - 4	.915

A further paired t-test was then carried out on the overall domain (responsiveness) to compare the “mean” agreement scores for the experiences and expectations of elderly individuals. Table 4.9 indicates that the mean agreement score measuring what they expect (4.69) in the responsiveness domain is significantly higher than the agreement score measuring what they experience (4.20).

Table 4.9: Paired t-test analysis on overall responsiveness

RESPONSIVENES S	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	76	4.20	.723	76	4.69	.508	-5.969	75	<.001

4.5.4 Analysis on Assurance

Assurance, according to Yarimoglu (2014: 83), is the ability of staff workers to be accommodative, knowledgeable and comforting. In this research study, assurance refers to how radiology staff would ensure the safety and ease of patients in the radiology environment. In Table 4.10 below, a paired t-test analysis for the “mean” agreement scores for both expectation and experience is indicated. This is to distinguish if there is a gap between what the elderly individuals expected and

experienced. For all the individual questions measuring assurance, the mean agreement scores that they expect these things are significantly greater than the mean agreement scores that they experience these things. For elderly patients' expectations, there was a significant agreement that for I trust the radiology personnel to perform the correct procedure (4.78), I feel safe in the care of the radiology personnel (4.78), the radiology personnel are always polite during my visits to the radiology facility (4.72), the approach and professionalism of radiology personnel instils confidence in me (4.71) and lastly, I trust the radiology personnel to retain confidentiality regarding my visit/treatment/condition (4.82).

Table 4.10: Paired t-test analysis on assurance

ASSURANCE	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
I trust the Radiology personnel to perform the correct procedure	76	4.51	.577	76	4.78	.450	-3.584	75	<.001
I feel safe in the care of the Radiology personnel	76	4.50	.643	76	4.78	.450	-3.621	75	<.001
Radiology personnel are always polite during my visits to the Radiology facility	76	4.38	.748	76	4.72	.580	-3.763	75	<.001
The approach and professionalism of Radiology personnel instils confidence in me	76	4.39	.750	76	4.71	.561	-4.472	75	<.001
I trust the Radiology personnel to retain confidentiality regarding my visit/treatment/condition	76	4.58	.617	76	4.82	.453	-3.525	75	<.001

Figure 4.8 below is a summary representation of the mean agreement and disagreement scores for each question under assurance for expectations and experiences.

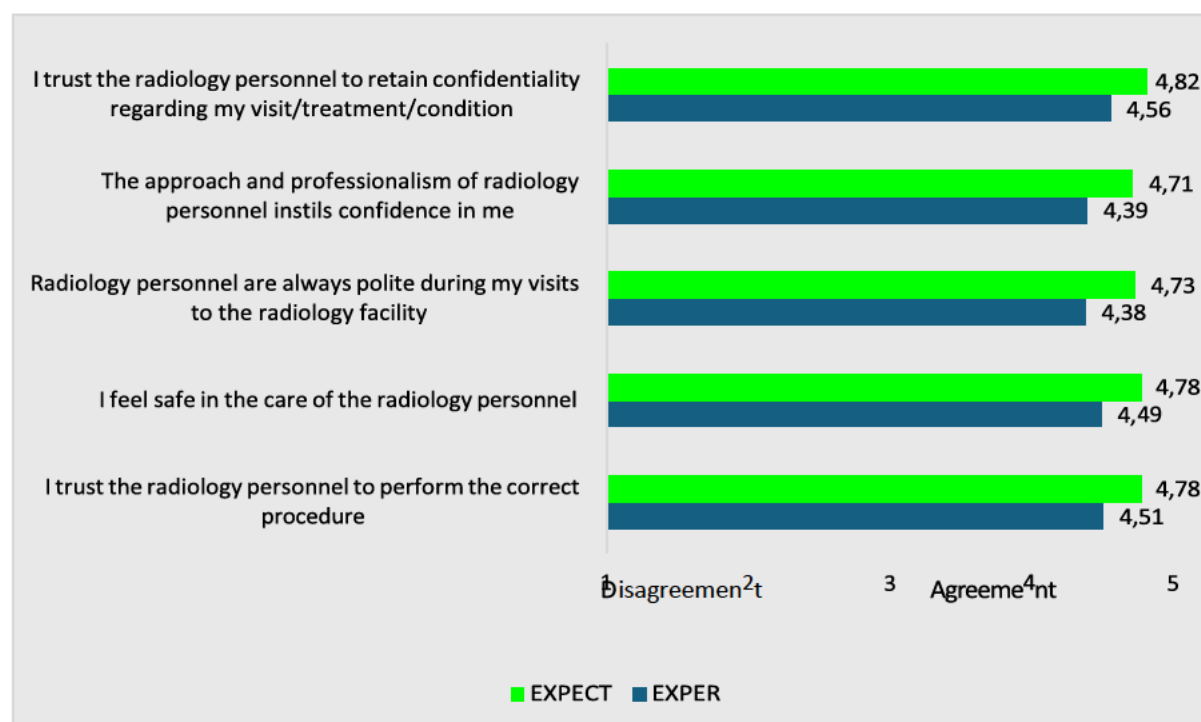


Figure 4.8: Representation of assurance (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.11 below indicates that the Cronbach's alpha values for the experiences (0.935) and expectations (0.941) of the overall assurance domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.11: Cronbach's alpha composite variable assurance

ASSURANCE	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_ASS	1 – 5	.935
EXPECTATION	EXPECT_ASS	1 - 5	.941

A further paired t-test was then carried out on the overall domain (assurance) to compare the "mean" agreement scores for the experiences and expectations of elderly individuals. Table 4.12 indicates that the mean agreement score measuring what they

expect (4.76) in the assurance domain is significantly higher than the agreement score measuring what they experience (4.47).

Table 4.12: Paired t-test analysis on overall assurance

ASSURANCE	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	76	4.47	.068	76	4.76	.051	-4.418	75	<.001

4.5.5 Analysis on empathy

According to Mosadeghrad (2012: 256), empathy is the ability to understand and care about the healthcare surroundings supplied to customers. The attributes of successful learning, trust, respect, confidentiality, civility, sympathy, understanding, responsiveness and good client-provider communication are included in this group (Mosadeghrad 2012: 256). In this research study, empathy referred to how patients would describe their perceptions of their needs and if it is being understood. In Table 4.13 on empathy below, a paired t-test analysis for the “mean” agreement scores for both expectation and experience is indicated to distinguish if there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring empathy, the mean agreement scores that they expect these things are significantly greater than the mean agreement scores that they experience these things. For elderly patients’ expectations, there was significant agreement that the behavior/approach of Radiology personnel indicates that they understand elderly patients (4.71), the Radiology personnel understand my specific needs as an elderly person (4.71), Radiology personnel give me personal attention during my appointments (4.63), Radiology personnel always treat me with dignity (4.71), I always feel that the Radiology personnel have my best interests at heart (4.76) and lastly, the Radiology facility tries to keep my waiting time to a minimum (4.66).

Table 4.13: Paired t-test analysis on empathy

EMPATHY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
The behaviour/approach of Radiology personnel indicates that they understand elderly patients	76	4.29	.813	76	4.71	.561	-4.660	75	<.001
The Radiology personnel understand my specific needs, as an elderly person	75	4.32	.738	75	4.71	.564	-5.109	74	<.001
The Radiology personnel give me personal attention during my appointments	76	4.25	.802	76	4.63	.650	-4.559	75	<.001
The Radiology personnel always treat me with dignity	76	4.41	.677	76	4.71	.512	-4.477	75	<.001
I always feel that the Radiology personnel have my best interests at heart	76	4.33	.737	76	4.76	.563	-5.018	75	<.001
The Radiology facility tries to keep my waiting time to a minimum	76	4.04	.916	76	4.66	.664	-6.889	75	<.001

Figure 4.9 below is a summary representation of the mean agreement and disagreement scores for each question under empathy for expectations and experiences.

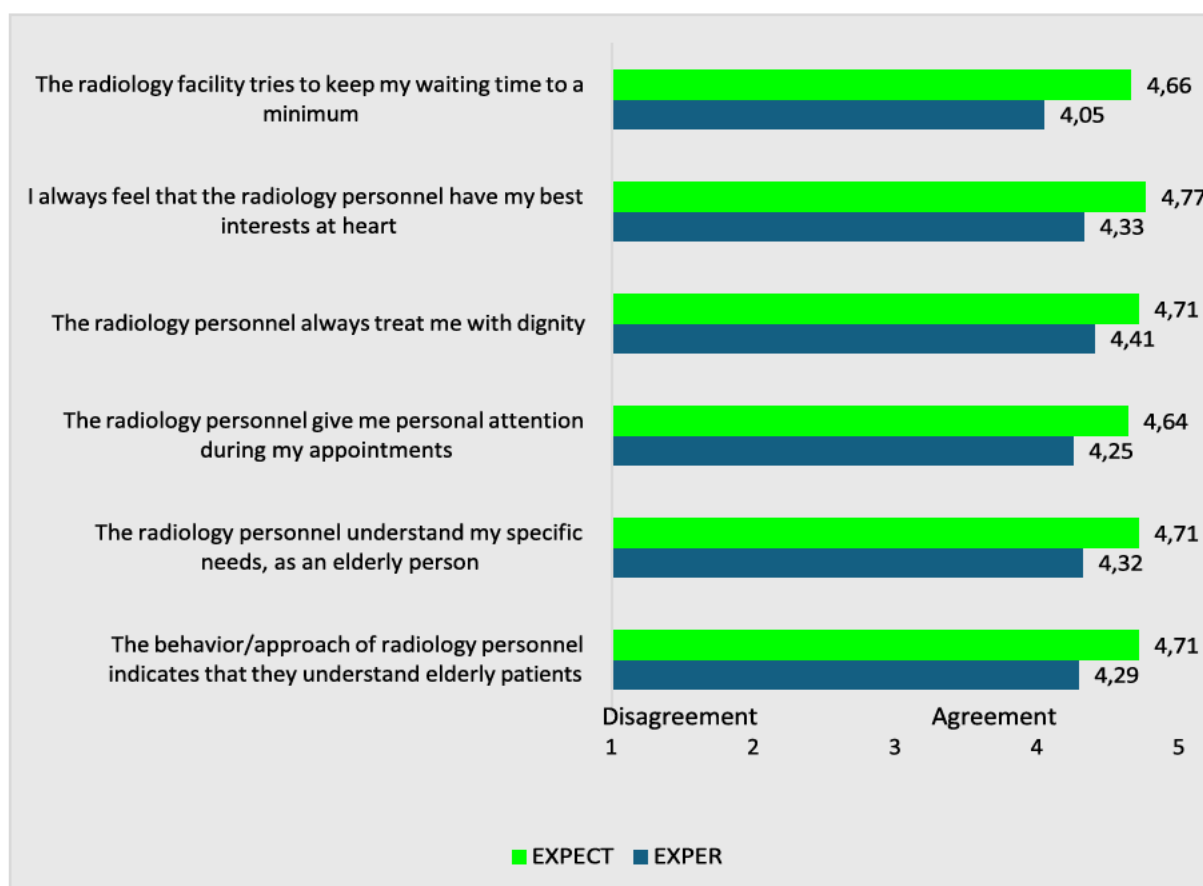


Figure 4.9: Representation of empathy (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.14: Cronbach's alpha composite variable empathy below indicates that the Cronbach's alpha values for the experiences (0.950) and expectations (0.958) of the overall empathy domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.14: Cronbach's alpha composite variable empathy

EMPATHY	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_EMP	1 – 6	.950
EXPECTATION	EXPECT_EMP	1 - 6	.958

A further paired t-test was then carried out on the overall domain (empathy) to compare

the “mean” agreement scores for the experiences and expectations of elderly individuals. Table 4.15 on overall empathy below indicates that the mean agreement score measuring what they expect (4.70) in the empathy domain is significantly higher than the agreement score measuring what they experience (4.27).

Table 4.15: Paired t-test analysis on overall empathy

EMPATHY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	76	4.27	.699	76	4.70	.534	-6.218	75	<.001

4.5.6 Analysis on accessibility

The degree to which people can easily get the treatment they require without excessive obstacles or limitations is known as accessibility (Mosadeghrad 2012: 256). In this study, accessibility referred to the ability to maneuver through the Radiology facility and transportation. In Table 4.16 on accessibility below, a paired t-test analysis for the “mean” agreement scores for both expectation and experience are indicated. This is to distinguish if there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring accessibility, the mean agreement scores that they ‘expect these things’ are significantly greater than the mean agreement scores that they ‘experience these things. For elderly patients’ expectations, there was a significant agreement that the radiology facility is convenient for me to access (transportation) (4.72); there is adequate, convenient parking and drop off points for me and other patients at this radiology facility (4.71); the operation hours of this radiology facility are convenient for me (4.70); and it is easy to contact this radiology facility to book an appointment/get information I need (4.67).

Table 4.16: Paired t-test analysis on accessibility

ACCESSIBILITY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
The Radiology facility is convenient for me to access (transportation)	76	4.47	.642	76	4.72	.532	-3.684	75	<.001
There is adequate, convenient parking and drop off points for me and other patients at this Radiology facility	76	4.46	.642	76	4.71	.542	-2.991	75	.004
The operation hours of this Radiology facility are convenient for me	76	4.45	.620	76	4.70	.517	-3.684	75	<.001
It is easy to contact this Radiology facility to book an appointment/get information I need	76	4.42	.659	76	4.67	.551	-4.194	75	<.001

Figure 4.10 below is a summary representation of the mean agreement and disagreement scores for each question under accessibility for expectations and experiences.

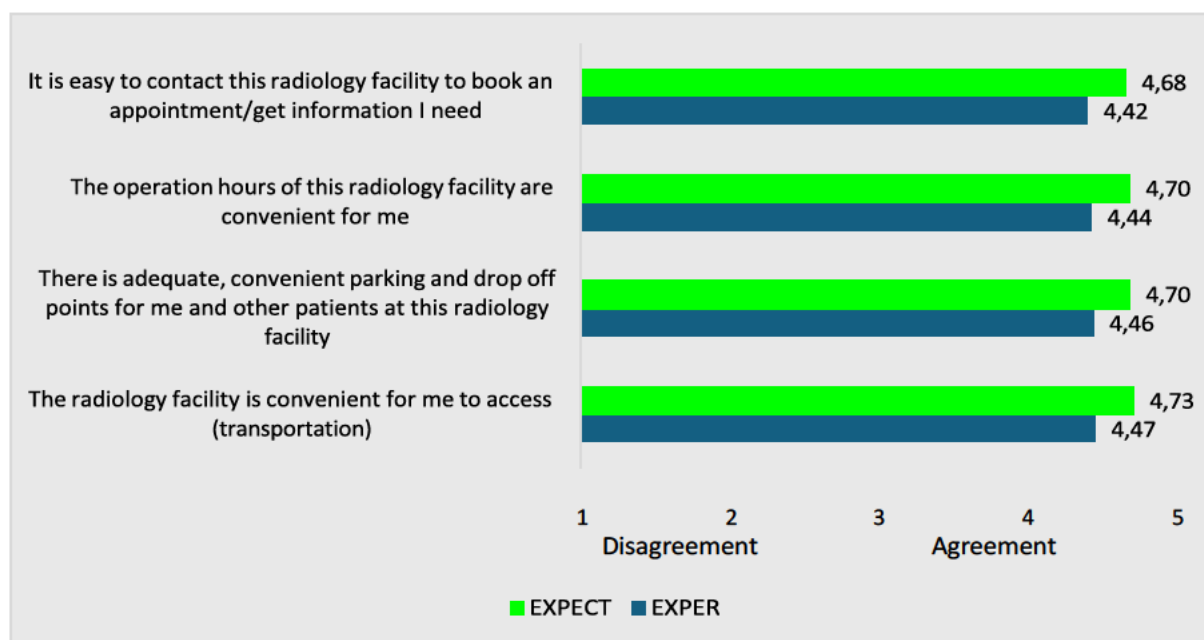


Figure 4.10: Representation of accessibility (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.17 below indicates that the Cronbach's alpha values for the experiences (0.935) and expectations (0.954) of the overall accessibility domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.17: Cronbach's alpha composite variable accessibility

ACCESSIBILITY	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_ACC	1 – 4	.935
EXPECTATION	EXPECT_ACC	1 - 4	.954

A further paired t-test was carried out on the overall domain (accessibility) to compare the “mean” agreement scores for the experiences and expectations of elderly individuals. Table 4.18 indicates that the mean agreement score measuring what they expect (4.70) in the accessibility domain is significantly higher than the agreement score measuring what they experience (4.45).

Table 4.18: Paired t-test analysis on overall accessibility

ACCESSIBILITY	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	76	4.45	.585	76	4.70	.502	-4.413	75	<.001

4.5.7 Analysis on communication

The process of sharing information, ideas and emotions between patients and healthcare professionals is referred to as communication by Yarimoglu (2014: 83). In this study, communication referred to the ability to communicate with the Radiology staff about examinations and bookings, patient comfort and safety. In Table 4.19 below, a paired t-test analysis for the “mean” agreement scores for both expectation and

experience is indicated to distinguish whether there is a gap between what the elderly individuals expected and experienced. For all the individual questions measuring communication, the mean agreement scores that they ‘expect these things’ are significantly greater than the mean agreement scores that ‘they experience these things. For elderly patients’ expectations, there was a significant agreement that I have been told why I need a specialized Radiology examination (4.83), I have been informed what radiology examination I have come for (4.84), the radiology personnel inform me of what preparation is required for the examination prior to the appointment (4.80), the radiology personnel inform me of what the examination entails (4.84) and lastly, the radiology admin staff provide me with the information I need during the booking of my appointment (e.g. payment method, medical aid involvement) (4.83).

Table: 4.19: Paired t-test analysis on communication

COMMUNICATION	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
I have been told why I need a specialized Radiology examination	75	4.37	.712	75	4.83	.415	-5.175	74	<.001
I have been informed what Radiology examination I have come for	75	4.41	.699	75	4.84	.369	-5.272	74	<.001
The Radiology personnel inform me of what preparation is required for the examination prior to the appointment	75	4.41	.699	75	4.80	.403	-4.956	74	<.001
The Radiology personnel inform me of what the examination entails	75	4.41	.660	75	4.84	.369	-6.442	75	<.001
The Radiology admin staff provide me with the information I need during the booking of my appointment (e.g. payment method, medical aid involvement)	75	4.39	.676	75	4.83	.446	-5.937	75	<.001

Figure 4.11 below on the representation of communication (n=40) is a summary of the mean agreement and disagreement scores for each question under communication for expectations and experiences.

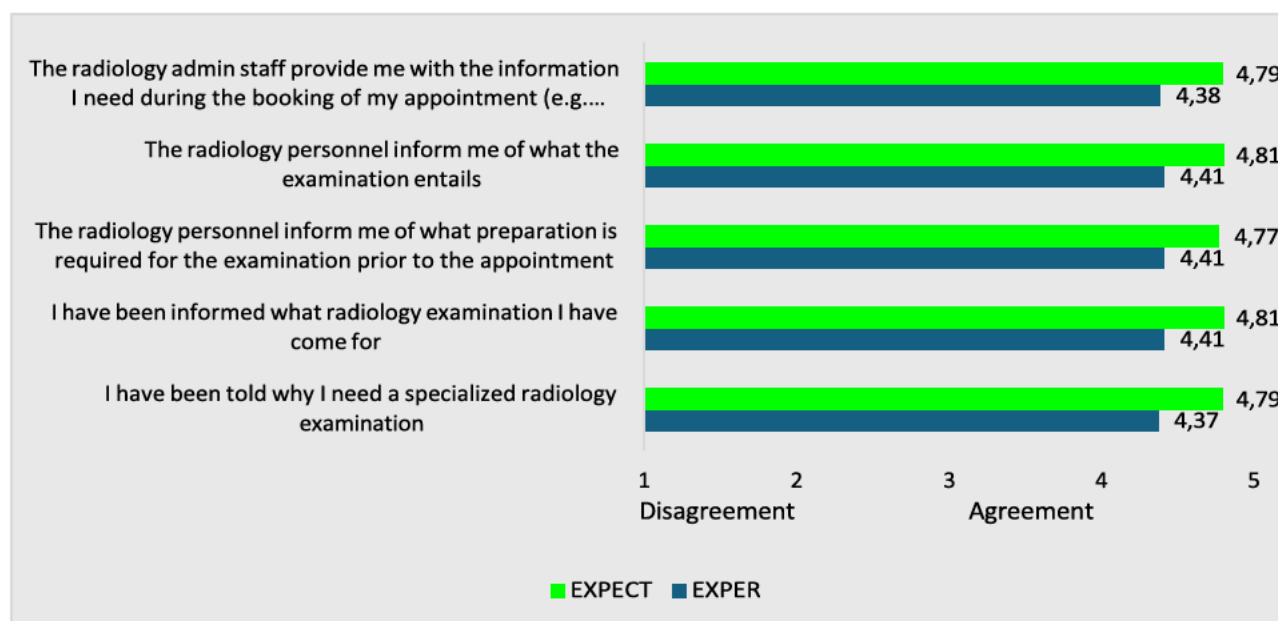


Figure 4.11: Representation of communication (n=40)

Cronbach's alpha was then applied using alpha greater than, equal to 0.7 to determine the internal consistency of the overall domain. A composite variable is then formed when alpha is greater than 0.7. Table 4.20 below indicates that the Cronbach's alpha values for the experiences (0.917) and expectations (0.952) of the overall accessibility domain are above 0.7, making the internal consistency reliable. A composite variable was then formed by calculating the average of the agreement scores for the number of questions in each domain.

Table 4.20: Cronbach's alpha composite variable communication

COMMUNICATION	Label	Items included	Cronbach's alpha
EXPERIENCE	EXPER_COMM	1 – 5	.917
EXPECTATION	EXPECT_COMM	1 - 5	.952

A further paired t-test was then carried out on the overall domain (communication) to compare the "mean" agreement scores for the experiences and expectations of elderly individuals. Table 4.21 for overall communication below indicates that the mean

agreement score measuring what they expect (4.83) in the communication domain is significantly higher than the agreement score measuring what they experience (4.40).

Table 4.21: Paired t-test analysis for overall communication

COMMUNICATIO N	EXPERIENCE			EXPECTATION			Paired t-test		
	n	Mean	Standard deviation	n	Mean	Standard deviation	t statistic	df	p-value
	75	4.40	.595	75	4.83	.041	-6.665	74	<.001

4.6 ANALYSIS OF COMPOSITE VARIABLES

Using a one sample t-test, a GAP score was calculated for each domain as $GAP = EXPECTATION - EXPERIENCE$ to determine if there were significant differences in each overall domain. A research gap occurs when a topic or question in one's field has not been addressed by any of the current studies or research (Ugwe, Ekere and Onoh (2021: 121). According to Al Kassab (2022:135), a one sample t-test is done to see if the population deviates from a fixed value. Hence, Table 4.22 below indicates that there were significant gaps between the expectations and experiences of elderly individuals for each one of the seven domains.

Table 4.22: Analysis of composite variables

GAPS	n	Mean	Standard deviation	t	df	p-value
TANGIBLES	79	0.38	0.655	5.225	78	<.001
RELIABILITY	79	0.47	0.575	7.320	78	<.001
RESPONSIVENESS	76	0.48	0.708	5.969	75	<.001
ASSURANCE	76	0.29	0.566	4.418	75	<.001
EMPATHY	76	0.43	0.596	6.218	75	<.001
ACCESSIBILITY	76	0.25	0.487	4.413	75	<.001
COMMUNICATION	75	0.43	0.554	6.665	74	<.001

Figure 4.12 on the gaps between the experiences and expectations for each domain is a summary representation of the “mean” values for gaps between each domain. The bar graph indicates that the “mean” values were higher for the gap in expectations of elderly individuals, hence the experience did not meet the expectations of elderly individuals. According to Figure 4.12 below, the experience Gap in Communication (GAP_COMM) (0.43) does not meet the expectation; the experience Gap in Accessibility (GAP_ACC) (0.25) does not meet the expectation; the experience Gap in Empathy (GAP_EMP) (0.43) does not meet the expectation; the experience Gap in Assurance (GAP_ASS) (0.29) does not meet the expectation; the experience Gap in Responsiveness (GAP_RES) (0.48) does not meet the expectation; the experience Gap in Reliability (GAP_REL) (0.47) does not meet the expectation; and lastly, the experience Gap in Tangibles (GAP_TAN) (0.38) does not meet the expectation.

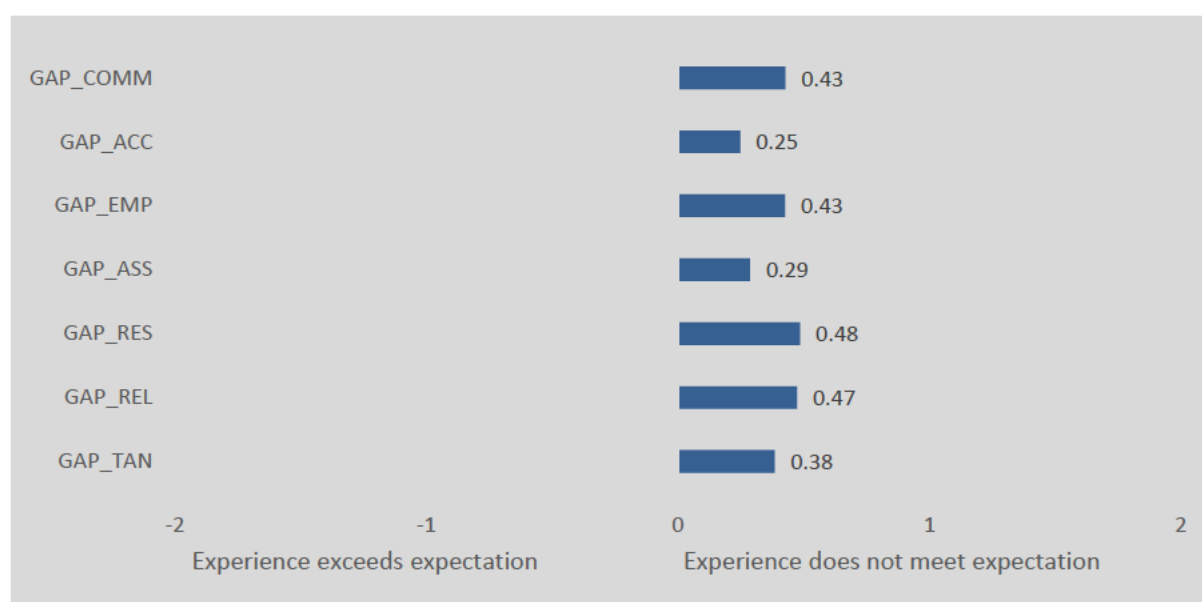


Figure 4.12: Gaps between the experiences and expectations for each domain

A repeated ANOVA test was also conducted thereafter. ANOVA is a statistical test known as the analysis of variance that is used to ascertain whether the means of three or more groups differ significantly from one another (Kim 2017: 22). Kim (2017: 22) further states that it is a continuation of the t-test, which compares two groups' means. The ANOVA test was conducted to prove any significant difference in gaps existed. The ANOVA test indicated a significant difference in the gap scores across the different domains, $F(4.232, 308.929) = 4.296, p = .002$. Post-hoc analysis with a

Bonferroni adjustment shows that: Gap Reliability (GAP_REL) is bigger than Gap Assurance (GAP_ASS) ($p < .001$) and Gap Accessibility (GAP_ACC) ($p = .001$); GAP Responsiveness (GAP_RES) is bigger than GAP_ASS ($p = .001$) and GAP_ACC ($p = .002$); Gap Empathy (GAP_EMP) bigger than GAP_ASS ($p = .001$) and GAP_ACC ($p = .005$); and Gap Communication (GAP_COMM) is bigger than GAP_ACC ($p = .006$).

4.7 ANALYSIS TO EXPLORE DIFFERENCES ACROSS DEMOGRAPHICS

4.7.1 By in/outpatient:

Results from an independent samples t-test show that GAP_TAN is significantly bigger for outpatients (mean = 0.47) than for inpatients (mean = 0.06), $t(39.887) = -2.830$, $p = .007$.

4.7.2 By payment type:

Results from an independent sample t-test are indicated in the form of a bar graph and table below. In Table 4.23, in all the domains, those paying by cash perceive the gap between what they get and what they expect to get as significantly bigger than those who pay by medical aid.

Table 4.23: Analysis of differences across demographics

Domain	Category	n	Mean (SD)	t	df	p-value
TANGIBLES	Cash	29	0.75 (0.688)	3.905	47.699	<.001
	Medical aid	50	0.17 (0.535)			
RELIABILITY	Cash	29	0.75 (0.602)	3.506	77	.001
	Medical aid	50	0.31 (0.497)			
RESPONSIVENESS	Cash	28	0.76 (0.765)	2.546	48.010	.014
	Medical aid	48	0.32 (0.626)			
ASSURANCE	Cash	28	0.49 (0.551)	2.507	74	.014
	Medical aid	48	0.17 (0.545)			
EMPATHY	Cash	28	0.63 (0.629)	2.356	74	.021
	Medical aid	48	0.31 (0.547)			
ACCESSIBILITY	Cash	28	0.42 (0.578)	2.219	42.239	.032
	Medical aid	48	0.15 (0.399)			
COMMUNICATION	Cash	28	0.61 (0.467)	2.234	73	.029
	Medical aid	47	0.32 (0.579)			

Figure 4.13 below on the differences across demographics is a summary representation of Table 4.23 on the differences across demographics, indicating the “mean” values for the gap between the expectations and experiences of elderly individuals who are on medical aid and who are cash patients. In all the domains, those paying cash perceive the gap between what they get and what they expect to get as significantly bigger than those who pay by medical aid. According to Figure 4.13 on the differences across demographics, the mean values between the expectations and experiences in the Gap in Communication (GAP_COMM) differs significantly between cash patients (0.61) and medical aid patients (0.32). The mean values between the expectations and experiences in the Gap in Accessibility (GAP_ACC) differs significantly between cash patients (0.42) and medical aid patients (0.15). The mean values between the expectations and experiences in the Gap in Empathy (GAP_EMP) differs significantly between cash patients (0.063) and medical aid patients (0.31). The mean values between the expectations and experiences in the Gap in Assurance (GAP_ASS) differs significantly between cash

patients (0.49) and medical aid patients (0.17). The mean values between the expectations and experiences in the Gap in Responsiveness (GAP_RES) differs significantly between cash patients (0.76) and medical aid patients (0.32). The mean values between the expectations and experiences in the Gap in Reliability (GAP_REL) differs significantly between cash patients (0.75) and medical aid patients (0.31). The mean values between the expectations and experiences in the Gap in Tangibles (GAP_TAN) differs significantly between cash patients (0.75) and medical aid patients (0.17).

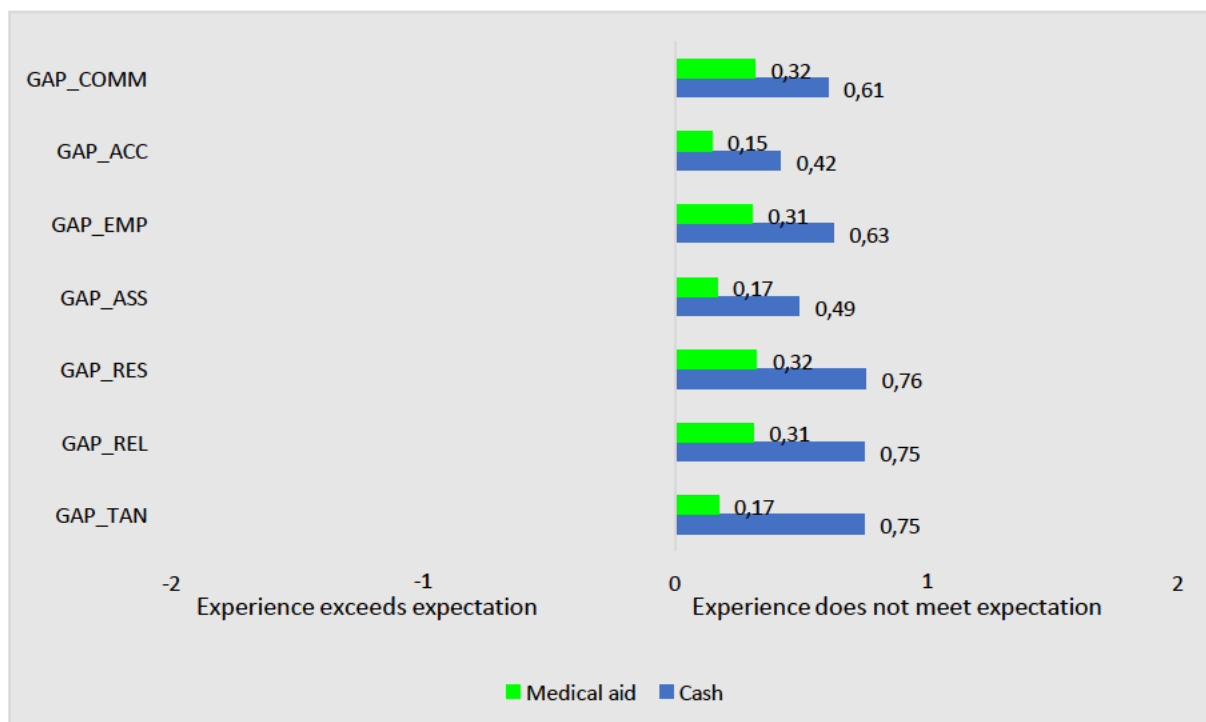


Figure 4.13: Analysis of differences across demographics

4.8 COMPARISON ACROSS FACILITY FOR EACH ITEM UNDER EACH DOMAIN

For comparison across private and public facility, the Mann-Whitney test for each item under each domain was done by comparing mean ranks instead of mean scores. The analysis included all items for experiences and expectation. If a mean rank is higher for private facilities than for public facilities, it means that agreement is higher for private than for public facilities, and vice versa. The mean rank values for these items with significant p-values in private facilities are higher than that of the public facility, which means that the agreement for private is significantly higher than that of public facilities.

4.9 COMPARISON ACROSS EACH DOMAIN FOR EXPECTATIONS AND EXPERIENCES

For comparison across dimensions, the Mann-Whitney test for each item was done by comparing mean ranks instead of mean scores. The analysis below includes all items for experiences and expectations of each domain. If a mean rank is higher for private than for public facilities, it means that agreement is higher for private than for public facilities, and vice versa. All but two of the dimensions in Table 4.24 below differ significantly across facility, the EXPECT_TAN (.058) and EXPECT_ASS (.146). Agreement is higher at the private Radiology facility than at the public Radiology facility.

Table 4.24: Mann-Whitney analysis across dimensions

Domain	Private		Public		Mann-Whitney	
	n	Mean rank	n	Mean rank	Z statistic	p-value
EXPER_TAN	40	48.50	40	32.50	3.169	.002
EXPECT_TAN	39	44.36	40	35.75	1.897	.058
EXPER_REL	40	49.04	40	31.96	3.329	.001
EXPECT_REL	39	44.82	40	35.30	2.139	.032
EXPER_RES	40	47.15	39	32.67	2.857	.004
EXPECT_RES	37	43.61	40	34.74	2.003	.045

EXPER_ASS	40	47.18	39	32.64	2.960	.003
EXPECT_ASS	37	42.16	40	36.08	1.455	.146
EXPER_EMP	40	49.84	39	29.91	3.931	<.001
EXPECT_EMP	37	43.42	40	34.91	-1.961	.049
EXPER_ACC	40	45.39	39	34.47	2.236	.025
EXPECT_ACC	37	43.77	40	34.59	2.168	.030
EXPER_COMM	39	44.99	39	34.01	-2.231	.026
EXPECT_COMM	37	44.05	40	34.33	-2.434	.015

4.10 COMPARISON ACROSS FACILITY FOR EACH DOMAIN

For comparison across facility, the Mann-Whitney test for each domain was done by comparing the mean ranks between private and public facilities. In Table 4.25 below, the mean ranks for each domain between the public and private facility were significantly larger. Four significant results appeared according to the p-value. The domain of GAP_TAN (.044), GAP_REL (.010), GAP_ASS (.013) and GAP_EMP (.006) indicated a significant gap between the public and private facilities. In all domains, those attending public facilities perceive the gap between what they get and what they expect to get as significantly bigger than those attending private facilities.

Table 4.25: Mann-Whitney analysis of comparison across facility

Domain	Private		Public		Mann-Whitney	
	n	Mean rank	n	Mean rank	Z statistic	p-value
GAP_TAN	39	34.87	40	45.00	-2.013	.044
GAP_REL	39	33.46	40	46.38	-2.560	.010
GAP_RES	37	33.74	39	43.01	-1.903	.013
GAP_ASS	37	32.49	39	44.21	-2.476	.013
GAP_EMP	37	31.51	39	45.13	-2.774	.006
GAP_ACC	37	35.49	39	41.36	-1.304	.192
GAP_COMM	36	34.93	39	40.83	-1.218	.223

Figure 4.14 on the Mann-Whitney analysis of the comparison across public and private facility according to the mean gap below is a summary representation of the Mann-Whitney analysis of the “mean” ranks for the gaps between each domain. The gap was significantly bigger at the public radiology facility than in the private radiology facility. In all domains, those attending the public radiology facility perceived the gap between what they get and what they expect to get as significantly bigger than those attending the private radiology facility. The mean rank between the expectations and experiences in the Gap in Communication (GAP_COMM) differs significantly between the public (0.45) and private (0.40) facility. The mean rank between the expectations and experiences in the Gap in Accessibility (GAP_ACC) differs significantly between the public (0.29) and private (0.20) facility. The mean rank between the expectations and experiences in the Gap in Empathy (GAP_EMP) differs significantly between the public (0.60) and private (0.24) facility. The mean rank between the expectations and experiences in the Gap in Assurance (GAP_ASS) differs significantly between the public (0.45) and private (0.12) facility. The mean rank between the expectations and experiences in the Gap in Responsiveness (GAP_RES) differs significantly between the public (0.66) and private (0.30) facility. The mean rank between the expectations and experiences in the Gap in Reliability (GAP_REL) differs significantly between the public (0.65) and private (0.30) facility. The mean rank

between the expectations and experiences in the Gap in Tangibles (GAP_TAN) differs significantly between the public (0.55) and private (0.22) facility.

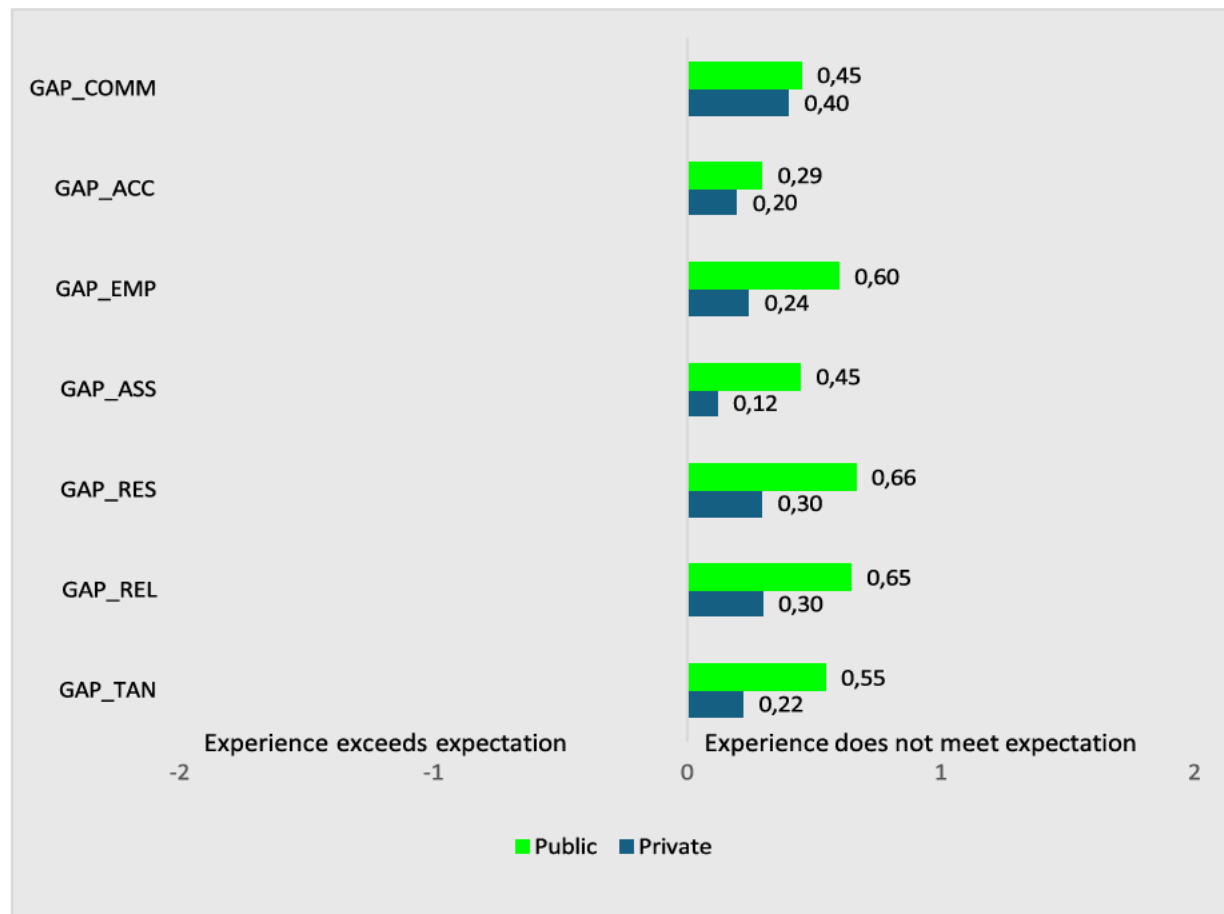


Figure 4.14: Mann-Whitney analysis of the comparison across public and private facilities according to the mean gap

4.11 CHAPTER SUMMARY

The data collection findings were presented in this chapter in the form of statistical findings from the data collected by responses of participants to the questionnaires. In the next chapter, these findings will be discussed with reference to the literature. Chapter 5: Discussion of The Findings to follow on the next page.

CHAPTER 5

DISCUSSION OF THE FINDINGS

5.1 INTRODUCTION

The research studies' findings were presented in the previous chapter. This chapter discusses the findings by citing literature that either confirms or contradicts the findings. This section will discuss how the findings relate to the applicability of the theoretical framework that guided this study. The aim of this research and its research objectives and questions were to explore the factors influencing elderly patient perceptions and their expectations of clinical service quality in private and public Radiology settings in the eThekweni district. The SERVQUAL model served as the theoretical framework for this study, which aimed to present data to enhance the provision of high-quality care for the elderly.

5.2 RESPONSE RATE

The response rate, according to Taherdoost and Madanchian (2020: 184 – 190), is one of the elements that affects a research study's validity and reliability, it also indicates the number of people who responded to the survey. One important component that aids researchers in evaluating the validity, dependability and reliability of the results of a study is the response rate level (Taherdoost and Madanchian 2020: 184 – 190). Taherdoost and Madanchian (2020: 184 – 190) add that a 20% to 30% response rate is the normal range for survey response rates, but acceptable rates can change based on the kind of survey, the intended audience and the objectives of the study. While response rates below 10% are regarded as extremely low, 50% is regarded as good.

The research study conducted at the private and public radiology facilities in the eThekweni district showed a high response rate. Of 80 elderly individuals, 75

completed the questionnaires and responded with valid answers, making the response rate 93.8%. This was an indication of a more representative sample with a low potential for bias. A high response rate was achieved by ensuring that the questionnaires were as short and simple as possible, were clear and concise, and assisted patients with writing as some of them were quite elderly or sick and were unable to write. Moreover, the researcher offered bottles of water to participants as a humanitarian action/health-based gesture to ensure the physical well-being of vulnerable elderly patients waiting in hot or crowded hospital corridors, rather than an incentive to participate.

5.3 DEMOGRAPHICS

Elderly individuals (over 60 years of age) were equally distributed across a private and a public radiology facility, making the sample size in private radiology 50% (n=40) and 50% (n=40) in public radiology. The data suggests that 43.8% of elderly individuals were between 60-69 years of age and 46.3% were between 70-79 years of age, whilst 10.0% were 80+ years of age. With age, relative health changes such as issues with physical, cognitive and emotional health become more serious and obvious (Sun and Li 2023: 2). A recent study by Manchaiah *et al.* (2021: 3) in the United States found that most elderly patients' experiences with healthcare services were favorable, despite some concerns about the clinical process and poor encounters with administrative processes. Adatara and Amooba (2020: 3 - 4) state that patients feel like a burden, which is connected to stress, depression and a lower quality of life.

Patients with hearing impairments visiting radiology departments have difficulty communicating, dealing with identification, consenting and positioning, whilst patients who are wheelchair-bound could have been physically active their entire lives, but now experience fatigue after a little stroll, which is frequently psychologically challenging to accept (Mohammed and Rosenkrantz 2020: 69 – 70). Aggarwal, Chaware and Aggarwal (2022: 3) indicated that dementia is one of the health issues that has the greatest influence on medical research since it necessitates a more careful approach to healthcare. The literature indicates the various barriers amongst the elderly groups. Their health, well-being, socioeconomic status and physical capabilities are major explanations for the differences in perceptions between their experiences and expectations in private and public healthcare radiology facilities. Hence, for the researcher to obtain reliable data from elderly individuals, much patience, care and sensitivity was required.

At least 15.0% were single and 53.8% were married, whilst 31.3% were separated/widowed/divorced. Marital status was essential to examine elderly individual health outcomes, comprehend social and demographic trends, and customize goods and services for particular populations. The data also indicated that 23.8% were inpatients, whilst 75.0% were outpatients. Furthermore, 1.3% of elderly individuals did not complete this question or chose not to respond to this. Andrade *et al.* (2013: 122 – 132) state that according to research, the physical environment of healthcare settings impacts how people perceive the staff and care, as well as how the physical environment is evaluated. Due to differences in their experiences, motivations and the context of their responses, people completing research questionnaires in a hospital setting may have different viewpoints than people answering as outpatients. Outpatients may have a more detached perspective, possibly considering their entire healthcare journey and long-term results, while inpatients may be more impacted by the immediate treatment environment and the perceived impact of their care on their rapid recovery. Patients may also be more approachable and willing to fill out questionnaires when they are in the hospital, whilst outpatients may be less likely to participate overall because they are more distracted and may have a possible time scale for when they may need to be in the hospital.

The data on mobility status indicated that 80.0% of elderly individuals used private transport to acquire radiology healthcare, whilst 20.0% used public transportation services. Lee *et al.* (2020: 2) explain that the various multi-morbidities faced by the elderly makes it very difficult for them to access and navigate the healthcare system, making travel the most difficult as it necessitates frequent trips to various healthcare service providers. Maneuvering the elderly around radiology facilities can be exhausting, hence performing any radiology procedure is physically challenging, which leads to sub-par imaging quality and occasionally non-diagnostic results (Donaldson *et al.* 2020: 1-6). Private transportation is known to allow for easier facilitation and movement of individuals than public transportation.

Almost 28.8% of elderly individuals were always accompanied whilst travelling, whilst 30.0% were sometimes accompanied, and 41.3% would travel alone. From this, at least 40.4% of elderly individuals required assistance whilst travelling and 44.7% needed company. Patient safety within radiology extends beyond technical radiation protection, it heavily encompasses the physical and psychological well-being of

vulnerable individuals as they navigate the clinical care environment (Rockall *et al.* 2022: 2). This environment involves multiple operational touchpoints, requiring the patient to independently complete registration, confirm appointment details, and follow technical positioning commands across varying levels of procedural complexity (Bryant and Lockwood 2023: 208). Modern healthcare systems increasingly rely on patient portals and mobile health applications as the primary, automated point of entry to manage these workflows (Zoorab *et al.* 2022: 2). However, rapid digital integration creates structural barriers for elderly cohorts, who frequently face age-related cognitive or sensory declines and lower technological literacy, thereby disadvantaging them in modern clinical systems (Raja, Galvin, and Kymre 2022: 2–3; Zoorab *et al.* 2022: 2). While these combined physical and digital limitations suggest that elderly individuals require an accompanying caregiver to safely navigate the radiology department, the empirical findings of this study revealed a stark contradiction, the majority of elderly participants attended their radiology appointments entirely unaccompanied. Within the context of the Ethekeeni district, this isolation is heavily shaped by local socio-economic constraints. Lower-income geriatric patients often lack the financial resources to fund dual-passenger transport fares, or their familial support structures are unavailable due to rigid work obligations, forcing these vulnerable individuals to navigate complex public and private imaging networks alone.

The research data shows that most elderly participants rely on private funding for their healthcare. Specifically, 63.8% of the elderly individuals surveyed have medical aid, while 36.2% pay with cash. Having private medical insurance is often a necessity rather than a luxury. Saka, Oosthuizen, and Nlooto (2019: 1) explain that while governments are responsible for protecting the rights of older citizens, their healthcare needs are often neglected because public funding is limited and governments have other priorities. In South Africa's public hospitals, these funding shortages lead to broken scanning machines, long waiting lists, and delays in getting x-rays or scans. Because of these public healthcare delays, having private medical aid helps older patients get fast and high-quality diagnostic services. This aligns with research by Suchsland *et al.* (2020: 394). They found that doctors prefer sending patients to private radiology facilities because they offer quick appointment bookings, fast results, advanced scanning methods, and convenient locations. Therefore, for the elderly patients in this study, medical aid is the main tool used to avoid long

public hospital waiting lines and get immediate care. Older patients need reliable access to radiology because they require medical scans very frequently. The data shows how often the participants visit a radiology department, 7.5% go at least once a month, 5.0% go at least every four months, 16.3% go at least every six months, 32.5% go at least once a year and 36.3% go less than once a year. When we combine these numbers, it shows that a majority of 61.3% of elderly individuals need radiology services at least once every six months to a year. This high number of visits is caused by serious health needs. In this study, 53.8% of the visits were for routine check-ups on existing illnesses, while 46.3% were to investigate a new diagnosis. Parry, Wani, and Yaseen (2021: 193) highlight that as people age, they naturally experience more chronic illnesses and complex health failures. Managing these illnesses requires regular testing across different medical departments, with radiology playing a central role. Because managing these conditions requires long-term, repeated medical scans, having a medical aid is vital. Without stable financial support, the high cost of multiple scans can stop elderly patients from getting the regular medical care they need to stay healthy.

5.4. ANALYSIS ACROSS DEMOGRAPHICS

An analysis of demographics was conducted to explore differences. An independent sample t-test was done according to in/outpatient respondents to determine if there were significant gaps in the demographics between respondents. It was ascertained that the gap for tangibles is significantly bigger for outpatients than for inpatients. In conclusion, the gap for all items under tangibles between what was expected and experienced was far greater for outpatients than for inpatient respondents. A further independent sample t-test was done according to the payment type of respondents. This indicated that those paying cash perceive the gap between what they experience and what they expect to get as significantly bigger than those who pay by medical aid in private.

Maneuvering the elderly around Radiology facilities can be exhausting, hence performing any Radiology procedure is physically challenging, which leads to sub-par imaging quality and occasional non-diagnostic results (Donaldson *et al.* 2020: 1-6). With all these difficulties, Radiology requests for irrelevant investigations should be turned down as conducting invasive tests on older patients without a need is

considered bad medicine (Rockall *et al.* 2022: 2-3). The level of patient trust in their doctor correlated with improved patient outcomes and higher levels of satisfaction with the care they receive (Ren *et al.* 2023: 1). It can be inferred from the results that there exists a large disparity between the expectations and experiences of the elderly patients concerning tangibles (environment and Radiology staffing) between private and public Radiology facilities and their levels of satisfaction with the care they receive.

5.5 ANALYSIS OF EXPECTATIONS AND EXPERIENCES ACROSS PRIVATE AND PUBLIC RADIOLOGY FACILITIES

5.5.1 Analysis on Tangibles (Environment)

Tangibles are described by Yarimoglu (2014: 83) as the physical infrastructure, such as buildings, structures, equipment and employees, both in terms of quantity and quality, that facilitates the provision of healthcare services. In this study, tangibles are referred to as the Radiology facilities' equipment, amenities (change rooms and rest rooms), physical layout, Radiology staffing and the ability of the elderly to be able to maneuver through the department. The data in this study indicated that for elderly expectations, there was significant agreement (with mean values) that Radiology facilities have modern equipment (4.78), Radiology amenities such as change rooms and rest rooms are hygienic and always well maintained (4.81), the physical layout of the Radiology facility is appealing (4.62), the Radiology personnel are appropriately and professionally dressed (4.75) and lastly, the Radiology facilities make it easy for elderly patients to maneuver through (4.78). In the overall tangible domain, data indicated that the mean agreement score for what they expect is significantly higher (4.73) than the agreement score for what they experience (4.34).

It is clear from the aforementioned data that there is a discrepancy between the expectations and experiences of elderly patients with tangibles. The evidence indicates that expectations are still being somewhat met, even though the experiences were not fully fulfilled. According to the literature, a study by Donaldson *et al.* (2020: 1-6) aligns with the current evidence which indicates that maneuvering the elderly around Radiology facilities can be exhausting, hence performing any Radiology procedure is physically challenging, which leads to sub-par imaging quality and occasional non-diagnostic results.

5.5.2 Analysis on Reliability

Reliability, according to Panteloukas, Asopo and Buwag (2012: 31), is the capacity to continuously provide on-time, correct, truthful and dependable services. This entails maintaining precise records, assessing fees fairly and delivering the service on schedule (Yarimoglu 2014: 83). In this research, reliability is related to the Radiology service time, as well as the ability to rely on the Radiology staffing, store accurate patient records, correctly perform examinations and courteously checking up on the elderly patient during the examination.

The data in this study displayed that for elderly patients' expectations, there was significant agreement (with mean values) that the Radiology facility provides its services at the time it promises to do so (4.71), I can rely on the Radiology personnel doing their best to address my needs (4.75), the Radiology facility keeps accurate patient records (4.77), Radiology examinations are correctly performed the first time (4.84) and lastly, the Radiology personnel check up on me during my examination/procedure (4.70). In the overall reliability domain, the data suggests that the mean agreement score for what they expect (4.75) is significantly higher than the agreement score for what they experience (4.29). From the above data, it can be inferred that the Radiology facilities under investigation are not entirely up to the expectations of the general geriatric population and do not have the ability to provide prompt service times, reliability of staffing, patient record keeping, reliability of staffing, and helpfulness.

According to McIntosh (2022: 25), service delivery is the main responsibility of a Radiology department, and it should be quick, efficient and successful because it has an impact on how customers perceive the department. This also highlights the recent survey completed by Suchsland *et al.* 2019: 394-395), which found that referring specialists requesting patients to attend private Radiology healthcare included the ability to promptly schedule patient appointments, personal professional relationships with radiologists, the effectiveness of receiving patient results, the quality and accuracy of radiologists, the range of different techniques, location and convenience, patient preferences, and hospital affiliations. Other literature findings by Ren *et al.* (2023: 1) and Rockall *et al.* (2022: 2-3) indicated that the level of patient trust in their doctor correlated with improved patient outcomes and higher levels of satisfaction with

the care they receive, and that Radiology requests with irrelevant investigations should be turned down as doing invasive tests on older patients without a need is considered bad medicine. It is clear from the research that older patients' expectations and experiences with reliability differ. The data indicates that patients are still receiving this help, even though the experiences were not fully satisfying.

5.5.3 Analysis on Responsiveness

According to Mosadeghrad (2012: 256), responsiveness refers to the reply to requests, feedback, questions and difficulties from customers in a timely manner, which is a sign of a company's commitment to providing customers with quality service. In this research study, responsiveness is related to the Radiology staff being able to handle queries and complaints, ability to respond efficiently to elderly patient needs, urgency of attending emergencies and Radiology staffing to show willingness to assist elderly individuals. The data in this research study indicated that for elderly expectations, there was significant agreement (with mean values) that the Radiology personnel handle my queries and complaints directly and immediately (4.63), Radiology personnel respond quickly and efficiently to my needs (4.61), emergencies are attended to with urgency (4.72) and Radiology personnel show willingness to assist elderly patients (4.78). In the overall responsiveness domain, the mean agreement scores for what they expect (4.69) are significantly higher than the agreement score for what they experience (4.20).

It is clear from the aforementioned data that there is a discrepancy between the expectations and realities of elderly patients regarding responsiveness. The data indicates that patients are still receiving this help, even though the experiences were not fully satisfying. According to the literature by Rockall *et al.* (2022: 2-3), technicians should be aware of elderly patient needs, which may involve giving each inspection more time or responding rapidly to age-related problems such as sensitive skin, sensitivity to temperature fluctuations, and hearing or vision loss. The current research does somewhat support the literature. In addition, the current research findings illustrate that the expectations of the elderly population in terms of responsiveness exceeded those of their experiences when attending private and public Radiology facilities in the eThekweni district.

5.5.4 Analysis on Assurance

According to Yarimoglu (2014: 83), assurance is the ability of staff workers to be accommodating, knowledgeable and comforting. Assurance in the research study is related to the ability of be able to trust the Radiology staff to perform the correct procedures, the ability to feel safe in the care of the Radiology staff, the Radiology staff being polite during elderly individual visits, the approach and professionalism of Radiology staff being able to instill confidence in the elderly and trusting the Radiology staff to be confidential during visits/treatment/condition.

The data in this research study demonstrated that for elderly expectations, there was significant agreement (with mean values) for I trust the Radiology personnel to perform the correct procedure (4.78), I feel safe in the care of the Radiology personnel (4.78), the Radiology personnel are always polite during my visits to the Radiology facility (4.72), the approach and professionalism of Radiology personnel instils confidence in me (4.71) and lastly, I trust the Radiology personnel to retain confidentiality regarding my visit/treatment/condition (4.82). In the overall assurance domain, the mean agreement scoring for what they expect (4.76) is significantly higher than the agreement score for what they experience (4.47). From the data above, it can be inferred that there is a gap between elderly patient expectations versus experiences on assurance. However, although their experiences were not entirely met, the data suggests that patients are still receiving this support.

According to the literature, a study in India indicated that patients strongly commended doctors who gave them enough time, communicated clearly and who they could trust with their private information in (Gala *et al.* 2022: 2). Further literature indicated that radiologists need accurate information from the patient's doctor to perform a Radiology examination with the outcome of a proper diagnosis, as explained by Parry, Wani and Yaseen (2021: 192). Ren *et al.* (2023: 5) also highlight that attending physicians have the most clinical experience in identifying patients' psycho-social needs, which likely helped to reduce patients' fears during hospitalization and, coupled with an increase in time spent providing direct patient care compared to other clinicians, would understandably translate into greater levels of patient trust. The above literature aligns to a certain degree with the current research study findings that demonstrate that the expectations of the elderly population under assurance exceeded those of their experiences when attending private and public Radiology facilities in the eThekweni

district.

5.5.5 Analysis on empathy

Mosadeghrad (2012: 256) describes empathy as the ability to understand and care about the healthcare surroundings supplied to customers. The attributes of successful learning, trust, respect, confidentiality, civility, sympathy, understanding, responsiveness and good client-provider communication are included in this group (Mosadeghrad 2012: 256). In the research study, empathy referred to the behavior/approach of Radiology staffing in being able to understand elderly patients, understand specific needs, give elderly individuals personal attention during visits, treat them with dignity, have elderly individuals' best interests at heart and being able to keep waiting times to a minimum.

The data in this study displayed that for elderly expectations, there was significant agreement (with mean values) that the behavior/approach of Radiology personnel indicates that they understand elderly patients (4.71), the Radiology personnel understand my specific needs as an elderly person (4.71), Radiology personnel give me personal attention during my appointments (4.63), Radiology personnel always treat me with dignity (4.71), I always feel that the Radiology personnel have my best interests at heart (4.76) and lastly, the Radiology facility tries to keep my waiting time to a minimum (4.66). In the overall empathy domain, the mean agreement scores for what they expect (4.70) is significantly higher than the mean agreement score for what they experience (4.27). From the data above, it can be inferred that the Radiology facilities under investigation are not entirely up to the expectations of the general geriatric population, which signifies the purpose of the entire research study to prove that elderly individuals are not entirely pleased with the Radiology services provided by Radiology staffing.

In physiotherapy, a study in South Africa showed that patients who had been treated by the same therapists throughout the session had a higher likelihood of satisfaction, especially if their health status improved (Gaudie *et al.* 2022: 1-9). Rockall *et al.* (2022: 2) state that palliative Radiology refers to the use of the fewest examinations and least invasive investigations possible to improve the quality of life for elderly people. Mohammed and Rosenkrantz (2020: 69–70) add that while a patient is in the examination room, medical staff can help transfer them from a wheelchair to a bed, but first they should ask the patient how they would like to be helped and give them

the opportunity to take the initiative. Rockall *et al.* (2022: 2) mention that there are several patient safety concerns in Radiology, which include ensuring the physical and psychological well-being of patients under direct care, maintaining the highest standard of service, and preventing direct harm from the technologies and procedures used by healthcare professionals. Rockall *et al.* (2022: 3) also state that Radiology departments need to adopt ways that are considerate and caring toward the senior patient population. The research cited above makes it evident that elderly patients have different expectations and experiences with empathy. Even though the encounters were not entirely satisfactory, the data shows that patients are still receiving this.

5.5.6 Analysis on accessibility

Accessibility refers to the ability of individuals to obtain necessary healthcare services when and where they need them, and it encompasses various factors like availability, affordability and acceptability of services, as well as physical and geographical barriers to access (Pratt, Taylor and Smith 2023: 549). In this study, accessibility referred to the Radiology facility and the convenience for elderly individuals to be able to access (transportation), convenient parking and drop off points, convenient operating hours and easy contact with the Radiology facility to book an appointment or get information.

The data in this study indicates that for elderly expectations, there was significant agreement (with mean values) that the Radiology facility is convenient for me to access (transportation) (4.72); there is adequate, convenient parking and drop off points for me and other patients at this Radiology facility (4.71); the operation hours of this Radiology facility are convenient for me (4.70); and it is easy to contact this Radiology facility to book an appointment/get information I need (4.67). In the overall accessibility domain, the mean agreement score for what they expect (4.70) is significantly higher than the agreement score for what they experience (4.45). According to the facts, the general elderly population does agree to some extent that Radiology facilities are accessible, although their expectations are higher than their experiences.

The literature indicates that patient portals and health applications would be the first point of entry for patients into technologically improved care. However, the elderly are typically slower with such developments and are disadvantaged in their medical care

due to the integration of these technologies into modern medicine with features being continually added to it, according to Zoorab *et al.* (2022: 2) and Raja, Galvin and Kymre (2022: 2-3). The current research findings agree with the literature above as the expectations of the elderly population under accessibility exceeded those of their experiences when attending private and public Radiology facilities in the eThekweni district.

5.5.7 Analysis of communication

According to Pratt, Taylor and Smith (2023: 549), communication is the sharing of ideas, sentiments and information between people through written, spoken and non-verbal means in order to foster understanding and trust that enhances patient care and results. With the intention of fostering mutual understanding, a sender conveys a message to a recipient. In this study, communication referred to being informed of why and what Radiology examination one has been booked for, being informed of the examination requirements and preps prior to the appointment, and Radiology admin staff providing the information needed during the booking of one's appointment (e.g. payment method, medical aid involvement).

The data in this research study showed that for elderly expectations, there was significant agreement (with mean values) that I have been told why I need a specialized Radiology examination (4.83), I have been informed what Radiology examination I have come for (4.84), the Radiology personnel inform me of what preparation is required for the examination prior to the appointment (4.80), the Radiology personnel inform me of what the examination entails (4.84) and lastly, the Radiology admin staff provide me with the information I need during the booking of my appointment (e.g. payment method, medical aid involvement) (4.83). In the overall communication domain, the mean agreement score for what they expect (4.83) is significantly higher than the agreement score for what they experience (4.40). The evidence suggests a discrepancy between the expectations and communication experiences of elderly patients. Although the experiences were not fully satisfied, the information indicates that patients are getting this assistance.

Bryant and Lockwood (2023: 208) explain that good communication between healthcare workers and patients improves the co-ordination of care; patient satisfaction; improves the safety and outcome; and decreases the costs of care. Brady

et al. (2020: 212) state that radiologists seldom deal with patients, hence crucial communication in Radiology takes place between receptionists, radiographers and patients. Hence, each encounter influences the patient's overall experience. A patient receiving medical examinations that involve the use of radiation is required by law to be informed of the radiation risks and the anticipated diagnostic and therapeutic benefits of the examination/procedure, according to the European Society of Radiology (ESR), hence all communication and care must be prompt, efficient and personalized (Anon. 2019: 1–5). Patients with hearing impairments visiting Radiology departments have difficulty communicating, dealing with identification, consenting and positioning, whilst patients who are wheelchair-bound could have been physically active their entire lives but now experience fatigue after a little stroll, which is frequently psychologically challenging to accept (Mohammed and Rosenkrantz 2020: 69–70). The current research literature aligns with the research findings.

5.6 DISCUSSION IN LINE WITH RESEARCH OBJECTIVES

5.6.1 Objective 1 - To identify the factors influencing elderly patient perceptions and experiences of clinical service quality at a private and a public Radiology facility in the eThekweni district.

From the research questionnaire, it can be inferred that there were several factors influencing elderly patients' opinions of clinical service quality and can be purely based on the patients' perceptions. These factors include:

✓ Operational service quality factors such as:

- Tangibles (Physical Environment): How the elderly patient perceives the physical layout, the cleanliness of amenities (like changing rooms and restrooms), and whether the facility layout makes it easy for them to physically maneuver through.
- Reliability: The patient's perception of whether the radiology staff performs the scans accurately and dependably the first time without errors.
- Responsiveness: How the patient views the willingness of radiographers and administrative staff to help them promptly, minimize waiting times, and address their needs without delay.
- Assurance: The patient's trust in the knowledge, courtesy, and clinical

competence of the radiology staff, which helps them feel safe during complex imaging procedures.

- Empathy: Whether the patient feels the staff gives them caring, individualized, and patient attention without making them feel rushed.
- Communication: The clarity of the explanations given by the staff. This is a critical factor for elderly patients who may have age-related hearing loss or anxiety regarding complex breath-holding and scanning commands.
- Accessibility: How the patient perceives the ease of getting to the facility, as well as navigating physical barriers like stairs, ramps, and corridors within the department.

✓ **Socio-Economic and Financial Factors:**

- Healthcare Sector Type: Whether the patient is perceiving care within a Public or a Private radiology facility, which significantly shapes their expectations of service speed and environment.
- Funding: Whether the patient has Medical Aid or is a Cash-paying patient, which dictates their access to private facilities and affects their financial peace of mind during care.
- Accompaniment Status: Whether the elderly individual had to navigate the appointment entirely unaccompanied or had a caregiver present to assist them with physical and cognitive limitations.

✓ **Clinical Visit Factors**

- Frequency of examinations: How often the patient must visit the department (ranging from once a month to less than once a year), which dictates how familiar and critical they are of the quality of service.
- Purpose of the visit: Whether the scan is for a routine examination (monitoring a chronic condition) or for a newly diagnosed examination (which carries higher patient anxiety and uncertainty).

The perceptions and experiences of elderly patients from 60 to 80 years of age may differ from those above 80 years old. With age, relative health changes, and issues with physical, cognitive and emotional health become more serious and obvious (Sun and Li 2023: 2).

In line with the literature above, the researcher could attribute many reasons for the difference in opinions. Some of the factors identified are mental health and socio-economic status. The use of public and private transportation to and from imaging facilities could be a factor with some elderly individuals who require assistance during their journey. Radiology equipment is also valuable in making elderly patient diagnoses, hence making this a significant factor. Many elderly patients depend on Radiology personnel to be able to assist them, which is necessary during the imaging process, as is trusting them to complete the correct examinations, making Radiology personnel another important factor. This leads to another factor, which is geriatric care, especially in Radiology. Patient-professional relationships are an important aspect in gaining patient trust and could also be a factor influencing elderly patient perceptions. The last factor is communication. Elderly patients must be able to hear and understand what is going on around them and to them. From the factors mentioned above, it may be concluded that several disparities exist between the experiences and expectations of elderly patients in the radiology facilities under investigation.

5.6.2 Objective 2 – To determine whether the SERVQUAL model can quantify healthcare and is applied to private and public Radiology healthcare facilities.

The primary focus of Objective 2 was to evaluate the structural capability and applicability of the SERVQUAL framework to empirically quantify clinical service quality within public and private radiology facilities. Rather than merely observing subjective patient feedback, this study utilized the five core dimensions of the SERVQUAL model—tangibles, reliability, responsiveness, assurance, and empathy—to convert elderly patients' psychological expectations and real-time clinical experiences into measurable, statistical data. The empirical findings confirm that the SERVQUAL model is a highly effective tool for quantifying service quality in specialized geriatric imaging.

The model's mathematical applicability was demonstrated through two distinct statistical phases in this study:

- Scale reliability quantification: Application of Cronbach's alpha yielded coefficients well above the standard 0.70 threshold for both the expectation scales and experience scales across the domains. This statistically proves that the SERVQUAL items possess high internal consistency and can reliably measure service quality constructs in both public and private radiology sectors.
- Service gap quantification: By pairing the identical item sets, the model successfully calculated operational gaps (Experience - Expectation scores). The paired t-test analyses demonstrated statistically significant negative gap scores across the dimensions (such as the overall tangible domain gap where $t(78) = -5.225$, $p < .001$).

These statistical gaps objectively reveal that neither public nor private facilities entirely meet the baseline clinical standards expected by geriatric patients. As noted by McIntosh (2022: 25), service delivery in a radiology department must be rapid, efficient, and operationally successful because it directly dictates consumer perceptions of the facility. By successfully mapping out these negative gaps, the SERVQUAL model has proven to be a valid, rigorous diagnostic instrument. It allows researchers to move past superficial opinions and mathematically pinpoint the exact operational deficiencies such as facility maintenance shortages or processing delays that fuel elderly patients' anxieties regarding their physical mobility and care funding. Therefore, the study confirms that the SERVQUAL framework can be successfully applied to quantify healthcare service quality, providing an actionable, data-driven foundation for service delivery reforms across both healthcare sectors.

5.7 COMPARISON ACROSS EACH DOMAIN FOR PRIVATE AND PUBLIC RADIOLOGY FACILITIES

The analysis further determines the gap score for each domain to determine whether the score is significantly different from zero. In this test, the average agreement score is tested against the central score of zero to determine if there are significant differences. A significant difference is indicated by a p-value <0.05 (refer to Table 4.22). The analysis showed significant gaps for each domain between what was

expected and what was experienced. Most elderly individuals felt that what they experienced was not what was expected. According to the analysis of the data for this research study, significant differences exist in clinical service quality according to each domain between private and public Radiology facilities. There was a higher agreement level in the experiences and expectations of elderly individuals at the private Radiology facility than at the public Radiology facility. Service delivery is the main responsibility of the Radiology department, which McIntosh (2022: 25) explains should be quick, efficient and successful because it has an impact on how customers perceive the department.

Across the facility, the domain of Gap Tangibles, Gap Reliability, Gap Assurance and Gap Empathy indicated a significant gap in the clinical service quality between the public and private facilities. Gap Tangibles had the highest test statistic values from all four domains, with Gap Assurance coming second highest, Gap Reliability being third and Gap Empathy being the last domain. According to Bryant and Lockwood (2023: 1-2), it is crucial to comprehend customer service delivery, customer satisfaction, related issues and quality assurance improvements when working as a service provider. In all domains, those attending public facilities perceived the gap between what they get and what they expect to get as significantly bigger than those attending private facilities. Both Adatara and Amooba (2020:4) as well as Saka, Oosthuizen and Nloto (2019: 4-5) found that in primary healthcare, the health status of the elderly can be improved when high-quality, reasonably priced healthcare services are offered.

5.8 DISCUSSION IN LINE WITH THE THEORETICAL FRAMEWORK

The theoretical framework used in this study was guided by the SERVQUAL model. The SERVQUAL model or American model is the difference between the services expected and the perceptions of customers' level of services received (Kang and James 2004: 268 - 269). The SERVQUAL model was developed by Parasuraman, Zeithaml and Berry in 1985 and consisted of five organizational gaps, later refined into ten dimensions of service quality which was then refined into five dimensions, namely reliability, responsiveness, assurance, tangibles and empathy (Endeshaw 2019: 90). On completion of the statistical analysis with the support of the Mann-Whitney test, it was established that the p-value for comparison across each domain for expectations

and experiences indicated that all but two of the dimensions in Table 4.25 differed significantly across facility, the EXPECT_TAN (.058) and EXPECT_ASS (.146). This was significant as it revealed that the gap between elderly patients' expectations of all dimensions, most importantly that of tangibles and accessibility, got significantly bigger than their experiences.

For comparison across facilities for each domain, the Mann-Whitney test was done by comparing the mean ranks between private and public facilities. This indicated that the mean ranks for each domain between the public and private facility were significantly larger. Four significant results appeared according to the p-value. The domain of GAP_TAN (.044), GAP_REL (.010), GAP_ASS (.013) and GAP_EMP (.006) indicated that there was a significant gap between the public and private facilities. In all domains, those attending public facilities perceive the gap between what they get and what they expect to get as significantly bigger than those attending private facilities.

The SERVQUAL model's paradigm is to analyze service quality as a subjective gap between patient expectations and actual experiences, particularly for geriatric patients. Utilizing findings from a Mann-Whitney U test, the analysis highlights significant negative service gaps, or service quality deficits, in public radiology facilities compared to private ones across tangibles, reliability, assurance, and empathy, directly linking these findings to structural challenges and functional service quality limitations.

5.9 CHAPTER SUMMARY

In Chapter 5, the research study findings on the factors influencing elderly patient perceptions and their expectations of clinical service quality in private Radiology settings in the eThekweni district were discussed with reference to the literature that either supported or contradicted the study conclusions and the applicability of the chosen theoretical model. In the next chapter, the strengths and limitations, together with the recommendations and conclusions of the study, will be reviewed. Chapter 6: Conclusions, Limitations and Recommendations to follow on the next page.

CHAPTER 6

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The aim of this research study was to explore the factors influencing elderly patients' perceptions and their expectations of clinical service quality in private and public Radiology settings in the eThekweni district. This was accomplished by using the SERVQUAL model as the theoretical framework. In this final chapter, the conclusion, limitations and recommendations from the findings of the study will be presented.

6.2 LIMITATIONS

By acknowledging the limitations and biases of a research study, researchers can mitigate their effects by providing a clearer explanation of the results (Endeshaw 2019: 90). They can therefore enhance their methods, support their conclusions and deepen the understanding of their specialized fields. It is important to understand this to be transparent and meticulous. Thus, the purpose of this section is to examine aspects of the research design, technique, data collection, analysis or interpretation that may restrict the validity, reliability, generalizability or applicability of the research study's findings. A variety of factors, including the complexity of the phenomenon under study, sample strategies, measurement instruments, statistical techniques and resource constraints that may lead to these limitations.

6.2.1 Limited demographic information

The study was limited to elderly patients based in one province in the eThekweni region. Another limitation is the probability that the results could have varied if the study was conducted at various other private and public Radiology facilities.

6.2.2 Limitation of a descriptive research design

The current study uses a small sample size to generalize about a larger population. However, this might not accurately reflect the entire community it intended on researching.

6.2.3 Limitation of the data collection tool

The research questionnaire was also limited in terms of comprehension and structure.

More than half of the elderly patients were unable to completely understand what was required of them without the researcher having to explain this in broader terms. The writing was too small, and the layout of sections B and C were very similar, which most times confused the participants. Section B dealt with the elderly's experiences, whilst Section C dealt with the elderly's expectations. Another limiting factor about the questionnaire guide was unlike qualitative studies, quantitative research usually does not allow for follow-up questions or a deeper exploration of participants' responses. Hence one is not able to provide a further explanation for the reason of one's answer.

6.2.4 Limitation of self-reported data

Self-reported statistics are details that people give about themselves. Since many elderly individuals were able to fill out the questionnaires on their own, this study depended on self-reported data. This may have led to cultural bias and response. Results may have been skewed because respondents may not have fully understood the questions, participants may have provided socially acceptable answers, or respondents may have viewed and assessed the information through the lens of their own cultural upbringing, which may have resulted in inaccurate rather than truthful responses.

6.3 CONCLUSIONS DRAWN FROM THE RESEARCH OBJECTIVES

The results of the study provide insight into the expectations and experiences of elderly patients towards the quality of clinical services in both public and private Radiology facilities, specifically in the eThekweni district, using a variety of statistical tests, including the Mann Whitney U test, Cronbach's alpha, ANOVA, paired sample t-tests, independent sample t-tests and one-sample t-tests.

The first objective of the study was to identify the factors influencing elderly patient perceptions and experiences of clinical service quality at a private and a public Radiology facility in the eThekweni district. The current study presented several factors that showed many disparities existing between what the patient experienced versus their expectations. Some of these disparities included tangibles, which referred to the ambiance of the environment and the appearance of Radiology staff. Reliability involved the consistency of the Radiology appointment times in terms of waiting periods, reliability of equipment, performance of Radiology examinations and effectiveness of results. Responsiveness referred to the Radiology department's ability

to provide its services fast and effectively. Assurance involved how Radiology staff would ensure the safety and ease of patients in the radiology environment. Empathy outlined how patients would describe their perceptions of their needs and if it is understood. Accessibility involved the ability to maneuver through the radiology facility and transportation and lastly, communication outlined the ability to communicate with the radiology staff about examinations and bookings, patient comfort and safety.

The second objective of the study was to determine whether the six domains quantifying healthcare, as derived by the WHO, applied to the private and public radiology healthcare facilities in Kwa-Zulu Natal. Large disparities exist in terms of what the elderly expect and what they experience. Some of these disparities included tangibles, which referred to the ambiance of the radiology environment and the appearance of radiology staffing. Reliability involved the consistency of the radiology appointment times in terms of waiting periods, reliability of equipment, performance of radiology examinations and effectiveness of results. Responsiveness referred to the radiology department's ability to provide its services fast and effectively. Assurance involved how radiology staff would ensure the safety and ease of patients in the radiology environment. Empathy outlined how patients would describe their perceptions of their needs and if it is understood.

Accessibility involved the ability to maneuver through the radiology facility and transportation and lastly, communication outlined the ability to communicate with the radiology staff about examinations and bookings, patient comfort and safety. According to the data analysis, the Mann-Whitney test was conducted by comparing the mean ranks between private and public facilities. This indicated that the mean ranks for each domain between the public and private facility were significantly larger. Four significant results appeared according to the p-value. The domain of GAP_TAN (.044), GAP_REL (.010), GAP_ASS (.013) and GAP_EMP (.006) indicated that there was a significant gap between the public and private facilities. In all domains, those attending public facilities perceive the gap between what they get and what they expect to get as significantly bigger than those attending private facilities. The results indicate that the above-mentioned gaps are carried out in Radiology healthcare, however, are not completely up to the standard of elderly patients.

6.4 RECOMMENDATIONS

The study makes suggestions that enables one to propose certain measures or approaches to deal with the problems and limitations that one's research has revealed. Additionally, it permits additional research or practice modifications based on the results. The studies recommendations are indicated below:

6.4.1 Future research

In order to positively shape the future of geriatric radiology, it is imperative to embrace these developments and adjust to the growing demands of patients, hence imaging techniques and healthcare delivery models will undoubtedly undergo continuous innovation and improvement in the field of geriatric radiology in the years to come (Er and Sng 2023: 1). Er and Sng (2023: 1) further explain that for this reason, efforts are being made to develop tele-radiology solutions and AI-driven image processing to make diagnostics more precise, streamline workflow, and increase older persons' access to specialized treatment. It is clear that in order to address the issues of clinical service quality in radiology, advancements in the six areas that quantify healthcare are required. Future research on older populations in greater numbers, as well as other private and public radiology institutions, is advised. This could enable researchers to assess whether older patients' expectations and experiences differ between private and public radiology institutions across the country. Assessing the additional variables that affect elderly patients' opinions of the quality of clinical service in both public and private radiology institutions may be worthwhile. In addition, it could be worthwhile to conduct research on how artificial intelligence might enhance the experiences of elderly patients in Radiology facilities in order to further enhance those experiences.

6.4.2 Training institutions

As Geriatric radiography requires distinct, adaptive clinical skills that differed significantly from routine medical imaging protocols used for younger patients. According to Naidoo and Van Wyk (2020:2). taking x-rays or performing advanced scans on elderly individuals demands highly flexible competencies. Radiographers must constantly make rapid clinical adjustments to balance imaging efficiently with the unique physical limitations, cognitive declines and safety vulnerability of elderly patients. However, undergraduate radiography training curricula have historically

been slow to incorporate dedicated comprehensible modules on specialized geriatric care. This gap in educational frameworks leaves recently qualified radiography graduates poorly prepared to manage the unique challenges of geriatric imaging such as handling fragile skill, dealing with extreme joint stiffens, and modifying positioning commands for patients with sensory loss. To bridge this clinical knowledge gap within the South African healthcare context, academic institutions must re-engineer their radiography curricula. Adding geriatric imaging as an explicit, independent module and integrating work integrated simulation training would ensure that student radiographers developed specialized, patient centered technique necessary to provide safe and effective safe to the growing elderly population.

6.4.3 Health institutions

Newbould, Samsi and Wilberforce (2022: 2203) state that some services rely on bespoke training that is provided in-house or through private providers, which may result in high costs for the companies and a lack of oversight on the quality of training provided. Newbould, Samsi and Wilberforce (2022: 2203) also mention persistent concerns that the training currently available is either too high-level and intended for qualified staff with clinical training, or it is trivially basic. Both public and private radiology facilities could benefit from hosting continuous medical education (CPD) events. This would help to address and discuss issues related to clinical service quality in the radiology community at large, including staffing issues, clinical care training and equipment to standardize the quality of care to be given to the elderly.

6.5. IMPLICATIONS AND APPLICATIONS

6.5.1 Disparities in the experiences and expectations of clinical service quality across private and public Radiology facilities

- *Implication:* The observed disparities in the expectations and experiences between public and private radiology institutions point to the necessity of focused instructional initiatives for radiography and radiology staff.
- *Application:* Create specialized university-level training programs for radiology and radiography students to meet the needs of elderly citizens.

6.5.2 Correlation between each domain across private and public Radiology facilities

- *Implication:* The correlation between each domain and radiology facility suggests that elderly individuals have better experiences in private radiology facilities.
- *Application:* Implement programs that allow radiology staff in both public and private facilities to exchange information, train, comprehend, identify and support one another in areas where public radiology facilities need improvement.

6.5.3 Correlation between elderly individuals and Radiology facilities

- *Implication:* The necessity of easy access to radiology for elderly individuals emphasizes the significance of considering various work environments.
- *Application:* Focused assessments of radiology facilities that must fulfil certain standards to enhance the quality of services provided to senior citizens.

6.6 CONCLUSIONS

The aim of this research study was to explore the factors influencing elderly patient perceptions and their expectations of clinical service quality in private radiology settings in the eThekweni district. The study was conducted with the use of a structured self-developed questionnaire, and the results were analyzed. From the data obtained, various conclusions were drawn. The first objective conclusion was that although there are several factors influencing elderly patients' perceptions of clinical service quality, not all of them can be addressed as certain factors are based on personal socio-economic factors. The second objective conclusion was that although the six domains quantifying healthcare may be applied to some extent to healthcare systems, there are still further improvements that can be made. The results from this study are only valid for elderly patients attending radiology facilities.

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APPENDICES

Appendix A: University ethics clearance certificate



KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

P.O. Comerton, Sydenham, 4015
75 R.D. Naidu Drive, Sydenham, 4015
Tel: 031 2426000 Fax: 031 2099586

King Dinuzulu Hospital Complex

Enquires: Dr Z. Dlamini

Reference: RES 20/2024

10/03/2025

Dear Ms Shah

RE: PERMISSION TO CONDUCT RESEARCH AT KING DINUZULU HOSPITAL COMPLEX (KDHC)

I have pleasure in informing you that permission has been granted to you by King Dinuzulu Hospital Complex to conduct research on "Factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public radiology facility in the Ethekwini District".

Please note the following:

1. At the time of supporting your research, I confirm that your study will not **negatively impact on service delivery at the facility** (e.g. through using excessive space at the facility, through requiring assistance from staff that takes them away from their work etc.)
2. Furthermore, at the time of supporting your research, I confirm that the participants and/or records that you require **are available** at the facility.
3. Please ensure that you **adhere** to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
4. This research will only commence once this office has received confirmation from the **Provincial Health Research Committee in the KZN Department of Health** (application made online: <https://nhrd.health.gov.za>).
5. Please ensure this office is informed **before** you commence your research.
6. The Facility **will not provide any resources for this research** unless prior arrangement has been made in writing
7. You will be expected to **provide feedback** on your findings to the Facility.

Thanking you.

Sincerely

Dr Z.F. Dlamini
CEO

Appendix B: Gatekeeper's consent



[05/11/2024]

[DUT Institutional Research Ethics Committee]

Request for Permission to Conduct Research

Dear Management,

I am currently registered as a student for Master of health sciences in Radiography at the Durban University of Technology. The research I wish to conduct for my Master's dissertation involves factors influencing elderly patient perceptions and their experiences of clinical service quality in a private and a public radiology facility in the Ethekwini district.

I am hereby seeking your consent to conduct this research study.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the DUT-Institutional Research Ethics Committee (IREC).

Your support and permission (in writing) to perform this study at this Kwa-Zulu Natal hospital radiology facility will be highly appreciated,

If you require any further information, please do not hesitate to contact me 064 650 8162 or email me nikita.seeparsad@gmail.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Nikita Shah Seeparsad
Durban University of Technology
Email: nikita.seeparsad@gmail.com
Cell: 064 650 8162

Appendix C: Approval letter from the KZN Department of Health



KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3189/ 3123 Fax: 033 394 3782
Email: hrkm@kznhealth.gov.za

Health Research & Knowledge
Management

NHRD Ref: KZ_202503_013

Dear Mrs. N S Seeparsad
(DUT)

Approval of research

1. The research proposal titled 'Factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public radiology facility in the eThekweni district' was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

The proposal is hereby approved for research to be undertaken at King Dinuzulu Hospital Complex.

2. You are requested to take note of the following:
 - a. **Kindly liaise with the facility manager BEFORE your research begins.**
This is to ensure that conditions in the facility are conducive to the conduct of your research. These include, but are not limited to, an assurance that the numbers of patients attending the facility are sufficient to support your sample size requirements, and that the space and physical infrastructure of the facility can accommodate the research team and any additional equipment required for the research.
 - b. *All research conducted in KwaZulu-Natal must comply with government regulations relating to Covid-19. These include but are not limited to: regulations concerning social distancing, the wearing of personal protective equipment, and limitations on meetings and social gatherings.*
 - c. *Please ensure that you provide your letter of ethics re-certification to this unit when the current approval expires.*
 - d. *Provide an interim progress report and final report (electronic and hard copies) when your research is complete to HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200 and e-mail an electronic copy to hrkm@kznhealth.gov.za*
 - e. *Please note that the Department of Health shall not be held liable for any injury that occurs as a result of this study.*

For any additional information please contact Dr. G Shezi on 033-395 3189.

Yours Sincerely

Dr E Lutge

Chairperson, Provincial Health Research Committee

Appendix D: Request for permission to conduct research at King Dinuzulu Hospital Complex

King Dinuzulu Hospital Complex

75 R D Naidu Drive

Sydenham

Durban

4091

Dear Ms Naicker

RE: REQUEST FOR PERMISSION TO CONDUCT STUDY

I am currently registered as a student for Master of health sciences in Radiography at the Durban University of Technology and I would therefore like to carry out a research study towards this. The proposed title for this research study is "The factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public Radiology facility in the eThekweni district".

The study will include approximately 40 elderly individuals aged 60 years and older, each attending the Radiology facility at King Dinuzulu Hospital Complex and Lenmed: Ethekeeni Hospital and Heart Centre. A comprehensive questionnaire has been formulated and will be distributed for completion to willing participants. Individuals will incur no cost by participating in this research study, nor will the company or hospital be liable for any expenses. The study is not structured to alter any existing protocols or interfere with the workflow in any way.

I believe that this research study will benefit, add value and knowledge to all radiographers, elderly patients, medical secretaries and referring doctors tremendously in terms of improving and enhancing our patients' care, educating patients on Radiology and fulfilling our passion as radiographers by ensuring we are always compassionate and empathic towards patients, especially the elderly. I thereby humbly request your permission to conduct this research study. My proposal has been reviewed and approved by the Department of Radiography, Faculty of Health Sciences and appropriate ethical approval has been obtained.

My research proposal with the questionnaire as well as the gatekeeper's permission and IREC preapproval has been attached for your perusal. Your support and permission to perform this study at King Dinuzulu Hospital Complex Radiology facility will be greatly appreciated.

Yours sincerely,

Nikita Shah Seeparsad

Email: nikita.seeparsad@gmail.com

Cell: 0646508162

Dr T E Khoza (HOD Acting) - Supervisor

Email: thandokuhlek@dut.ac.za/ Cell: 073 236 6982

Appendix E: Approval letter from the CEO of King Dinuzulu Hospital Complex



KWAZULU-NATAL PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

King Dinuzulu Hospital Complex

P.O. Comerton, Sydenham, 4015
75 R.D. Naidu Drive, Sydenham, 4015
Tel: 031 2426000 Fax: 031 2099536

Enquires: Dr Z. Dlamini

Reference: RES 20/2024

10/03/2025

Dear Ms Shah

RE: PERMISSION TO CONDUCT RESEARCH AT KING DINUZULU HOSPITAL COMPLEX (KDHC)

I have pleasure in informing you that permission has been granted to you by King Dinuzulu Hospital Complex to conduct research on "Factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public radiology facility in the Ethekwini District".

Please note the following:

1. At the time of supporting your research, I confirm that your study will not **negatively impact on service delivery at the facility** (e.g. through using excessive space at the facility, through requiring assistance from staff that takes them away from their work etc.)
2. Furthermore, at the time of supporting your research, I confirm that the participants and/or records that you require **are available** at the facility.
3. Please ensure that you **adhere** to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
4. This research will only commence once this office has received confirmation from the **Provincial Health Research Committee in the KZN Department of Health** (application made online: <https://nhrd.health.gov.za>).
5. Please ensure this office is informed **before** you commence your research.
6. The Facility **will not provide any resources for this research** unless prior arrangement has been made in writing
7. You will be expected to provide **feedback** on your findings to the Facility.

Thanking you.

Sincerely

Dr Z.F. Dlamini
CEO

Appendix F: Request for permission to conduct study at Jackpersad & Partners Inc.

Dr Jackpersad & Partners Inc.

71/73 Ismail c Meer St & Lorne Street

Durban

4001

Dear Sir/Madam

RE: REQUEST FOR PERMISSION TO CONDUCT STUDY

I am currently registered as a student for Master of health sciences in Radiography at the Durban University of Technology and I would therefore like to carry out a research study towards this. The proposed title for this research study is "The factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public Radiology facility in the eThekweni district".

The study will include approximately 40 elderly individuals aged 60 years and older, each attending the Radiology facility at King Dinuzulu Hospital Complex and Lenmed: eThekweni Hospital and Heart Centre. A comprehensive questionnaire has been formulated and will be distributed for completion to willing participants. Individuals will incur no cost by participating in this research study, nor will the company or hospital be liable for any expenses. The study is not structured to alter any existing protocols or interfere with the workflow in any way. I believe that this research study will benefit, add value and knowledge to all radiographers, elderly patients, medical secretaries and referring doctors tremendously in terms of improving and enhancing our patients' care, educating patients on Radiology and fulfilling our passion as radiographers by ensuring we are always compassionate and empathic towards patients, especially the elderly. I thereby humbly request your permission to conduct this research study. My proposal has been reviewed and approved by the Department of Radiography, Faculty of Health Sciences and appropriate ethical approval has been obtained.

My research proposal with the questionnaire as well as the gatekeeper's permission and IREC preapproval has been attached for your perusal. Your support and permission to perform this study at the Radiology facility at Lenmed: eThekweni Hospital and Heart Centre will be greatly appreciated.

Yours sincerely,

Nikita Shah Seeparsad

Email: nikita.seeparsad@gmail.com

Cell: 0646508162

Supervisor details:

Dr T E Khoza (HOD Acting)

Email: thandokuhlek@dut.ac.za/

Cell: 073 236 6982

Appendix G: Approval letter from Dr Jackpersad & Partners Inc.



**JACKPERSAD
& PARTNERS INC.**
SPECIALIST DIAGNOSTIC
RADIOLOGISTS

71/73 Ismail C Meer St (Lorne St),
3rd Floor, Maxwell Centre, Durban
Tel : 031-365 2100
Fax : 086 272 1976
E-mail: info@jrp.co.za
www.jackpersad.co.za

11 November 2024

The Supervisor
Dr TE Khoza
Health Sciences Department
Sonography

Re: MASTERS PROGRAMME-PRACTICE PERMISSION LETTER FOR NIKITA SEEPARSAD.

Dear Dr Khoza

This letter serves to confirm that Nikita Shah Seeparsad is currently employed as a Sonographer at Drs Jackpersad and Partners Inc (JPI), Ethekeini Radiology Department.

Permission has been granted for Nikita Shah Seeparsad to conduct her research at our JPI practice.

Topic of her research is: 'Factors influencing elderly patient perceptions and experiences of clinical service quality in a private and a public radiology facility in the Ethekeini district.'

Yours sincerely

Fathima Farouk

*Regional Manager
Drs Jackpersad and Partners*

031 3652165/083 306 7439

DR I Govender
MBCHB (Medunsa)
FCRAD (D) SA

DR M Haines
MBCHB (UKZN)
FCRAD (D) SA
BODY IR(UICALGARY)
MBA (USB)

DR I Hanarod
BSC (UCT)
MBBCH (WITS)
FCRAD (D) SA

DR RC Hurribunce
MBCHB (Natal)
FFRAD (D) SA

DR S Langa
MBCHB (UKZN)
FCRAD (D) SA
MMED (UKZN)

DR F Lockhat
MBCHB (Natal)
FCRAD (D) SA

DR IG Moodley
MBCHB (Medunsa)

DR S Pandey
MBCHB (Natal)

DR K Pillay
MBCHB (Medunsa)

DR M Pillay
MBCHB (Medunsa)

DR HJ Ramjee
MBCHB (Natal)

DR TM Shayingca
MBCHB (Natal)

Appendix H: Template for informed consent



CONSENT

Full Title of the Study: Factors influencing elderly patient perceptions and experiences of clinical service quality in private and public Radiology facilities in the Ethekekwini district, KwaZulu Natal.

Names of Researcher/s: Nikita Shah Seeparsad

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Nikita Shah Seeparsad, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 210/24.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

Full Name of Participant
Thumbprint

Date

Time

Signature/Right

Nikita Shah Seeparsad herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Nikita Shah Seeparsad

Full Name of Researcher

Date

Signature

Full Name of Witness (If applicable)

Date

Signature

Full Name of Legal Guardian (If applicable)

Date

Signature

Appendix I: Letter of information for the interview participants



LETTER OF INFORMATION

Title of the Research Study: Factors influencing elderly patient perceptions and experiences of clinical service quality in private and public Radiology facilities in the eThekweni district, KwaZulu Natal.

Principal Investigator/s/researcher: Mrs. Nikita Shah Seeparsad (ND: Rad (US) (DUT) & BTech: Rad (US) (DUT)

Co-Investigator/s/supervisor/s: Supervisor: Dr T B Khoza ((PhD: Health Sciences (DUT). M Tech: Rad (Diag) (UJ). B Tech: Rad (Diag) (UJ). ND: Rad (Diag) (UJ))

Brief Introduction and Purpose of the Study: More than half of the patients who see private and public Radiology healthcare providers are older people. This is brought on by their everyday struggles with a variety of health issues and frailty. Consequently, it can then be presumed that it would be vital to ensure the comfort and well-being of elderly patients visiting private and public Radiology facilities. Hence, the key challenge in achieving good quality elderly healthcare is to adapt this to the needs of elderly patients as perceived by themselves in order to improve and enhance the output of quality care.

Greetings: Good morning, Sir/Mam or Good day Sir/Mam. How are you today?

Introduce yourself to the participant: I am a qualified sonographer and currently a registered student at DUT continuing my academic studies for my master's research degree in Radiography.

Invitation to the potential participant: I would like to invite you to participate in my research study.

What is Research: Research is a systematic search or enquiry for generalized new knowledge.

Outline of the Procedures: The research study will be conducted at Ethekeeni heart hospital (Private) and King Dinuzulu Hospital Complex (Public). An estimate of 80 participants will participate in the study, approximately 40 from private and 40 from public. You will be included in this study according to the inclusion criteria. The questionnaire will be undertaken at the place and time which is convenient to you. Your responsibility is to give me consent to participate in this study and to answer the questionnaire honestly. The questionnaire consists of three sections with a time duration of approximately 20-30 minutes. Data will be captured via physical notes, however ensuring confidentiality.

Aim:

This research study aims to determine factors influencing elderly patient perceptions and their experiences of clinical service quality in a private and public Radiology facility in the Ethekekwini district in order to identify, improve and enhance clinical care for elderly individuals.

Objectives:

- To identify the factors influencing elderly patient perceptions and experiences of clinical service quality at a private and a public Radiology facility in the Ethekekwini district; and
- To determine whether the six domains quantifying healthcare, derived by the World Health Organization, are applied to private and public Radiology healthcare facilities.

Inclusion criteria

- All elderly patients visiting the private and public Radiology facility in the Ethekekwini being researched
- Individuals 60 years and older
- All gender and ethnic groups
- Individuals who are willing to participate in the study

Exclusion criteria

- Clinically unstable patients
- Individuals younger than 60 years of age
- Individuals accompanying a patient who is booked for an examination

Risks or Discomforts to the Participant: There are no risks involved in participating in this research study. All information will be held confidentially in respect of the Popi Act.

Explain to the participant the reasons he/she may withdraw from the Study: You are free to withdraw from the research study at any given point in time without any form of penalty. You are kindly required to communicate this to me should you want to withdraw from the study.

Benefits: This research study is intended to highlight the care received by elderly patients in private and public Radiology healthcare. To assist relevant private and public Radiology facilities improve their clinical service care and, in the process, create or update policies on elderly patient care needs.

Remuneration: There is no remuneration for participating in the study.

Costs of the Study: There is no costs associated with participating in the study.

Confidentiality: All your information will be collected in a confidential manner as outlined by the Popi Act.

Results: Research results can be communicated by contacting me via email if you wish to do so. Alternatively, results will be published on online journal sites.

Research-related Injury: There are no anticipated risk of injury.

Storage of all electronic and hard copies including tape recordings All hard copies will be kept confidential by the researcher in a safe place. Once the data has been analyzed, all hardcopies of information will be discarded in accordance with Popi Act.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher, Nikita Shah Seeparsad 064 650 8162 or my supervisor Dr T B Khoza 073 236 6982 or the DUT-Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support on researchdirector@dut.ac.za

Appendix J: Questionnaire - English

QUESTIONNAIRE GUIDE - ENGLISH

Section One

For each question, select the **ONE RESPONSE** option that best applies to you.

1.1 Are you a medical patient who requires a Radiology examination?

Yes	No

1.2 What is your age group?

60 to 69 years	70 to 79 years	80 + years

1.3 Marital status

Single	Married	Widowed/ Divorced / Separated

1.4 Are you an in-patient or outpatient?

In-patient	Outpatient

1.5 How often do you come in for Radiology examinations?

At least once a month	At least every 4 months	At least every 6 months	At least once a year	Less often than once a year

1.6 Are the Radiology examinations today for a newly diagnosed medical condition or are these your routine follow up examinations/checkups?

Newly diagnosed medical condition	Routine examinations/checkups

1.7 Are you a cash patient or do you have a medical aid scheme?

Cash	Medical Aid

1.8 Does anyone accompany you for your Radiology examinations (friends/family)?

Yes, always	Sometimes	No

1.8.1 If yes to the above question, clarify if you require the assistance of someone or rather just want company whilst waiting for your examinations?

Need assistance	Want company

1.9 How do you travel to your Radiology medical appointments?

Private transport	Public transport	Walk

Section Two

Indicate your level of agreement with the following statements regarding **YOUR EXPERIENCES** at this Radiology facility.

In my experience...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
TANGIBLES					
3.1.1 The Radiology facility has modern equipment					
3.1.2 The Radiology amenities such as changing rooms and rest rooms are hygienic and always well maintained					
3.1.3 The physical layout of the Radiology facility is appealing					
3.1.4 The Radiology personnel are appropriately and professionally dressed					
3.1.5 The Radiology facility layout makes it easy for elderly patients to maneuver through					
RELIABILITY					
3.2.1 The Radiology facility provides its services at the time it promises to do so					
3.2.2 I can rely on the Radiology personnel doing their best to address my needs					
3.2.3 The Radiology facility keeps accurate patient records					
3.2.4 Radiology examinations are correctly performed the first time					
3.2.5 The Radiology personnel check up on me during my examination/procedure					
In my experience...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

RESPONSIVENESS					
3.3.1 Radiology personnel handle my queries and complaints directly and immediately					
3.3.2 Radiology personnel respond quickly and efficiently to my needs					
3.3.3 Emergencies are attended to with urgency					
3.3.4 Radiology personnel show willingness to assist elderly patients					
ASSURANCE					
3.4.1 I trust the Radiology personnel to perform the correct procedure					
3.4.2 I feel safe in the care of the Radiology personnel					
3.4.3 Radiology personnel are always polite during my visits to the Radiology facility					
3.4.4 The approach and professionalism of Radiology personnel instils confidence in me					
3.4.5 I trust the Radiology personnel to retain confidentiality regarding my visit/treatment/condition					
EMPATHY					
3.5.1 The behavior/approach of Radiology personnel indicates that they understand elderly patients					
3.5.2 The Radiology personnel understand my specific needs, as an elderly person					
3.5.3 The Radiology personnel give me personal attention during my appointments					
3.5.4 The Radiology personnel always treat me with dignity					
3.5.5 I always feel that the Radiology personnel have my best interests at heart					
3.5.6 The Radiology facility tries to keep my waiting time to a minimum					
ACCESSIBILITY					
3.6.1 The Radiology facility is convenient for me to access (transportation)					
3.6.2 There is adequate, convenient parking and drop off points for me and other patients at this Radiology facility					
3.6.3 The operation hours of this Radiology facility are convenient for me					
3.6.4 It is easy to contact this Radiology facility to book an appointment/get information I need					
In my experience...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
COMMUNICATION					

3.7.1 I have been told why I need a specialized Radiology examination					
3.7.2 I have been informed what Radiology examination I have come for					
3.7.3 The Radiology personnel inform me of what preparation is required for the examination prior to the appointment					
3.7.4 The Radiology personnel inform me of what the examination entails					
3.7.5 The Radiology admin staff provide me with the information I need during the booking of my appointment (e.g. payment method, medical aid involvement)					

Section Three

Indicate your level of agreement with the following statements regarding **YOUR EXPECTATIONS** at this Radiology facility.

I expect...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
TANGIBLES					
4.1.1 The Radiology facility to have modern equipment					
4.1.2 The Radiology amenities such as changing rooms and rest rooms to be hygienic and well maintained					
4.1.3 The physical layout of the Radiology facility to be appealing					
4.1.4 The Radiology personnel to be appropriately and professionally dressed					
4.1.5 The Radiology facility layout to be easy for elderly patients to maneuver through					
RELIABILITY					
4.2.1 The Radiology facility to provide its services at the time it promises to do so					
4.2.2 The Radiology personnel to do their best to address my needs					
4.2.3 The Radiology facility to keep accurate patient records					
4.2.4 Radiology examinations to be correctly performed the first time					
4.2.5 The Radiology personnel to check up on me during my examination/procedure					
I expect...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
RESPONSIVENESS					

4.3.1 Radiology personnel to handle my queries and complaints directly and immediately					
4.3.2 Radiology personnel to respond quickly and efficiently to my needs					
4.3.3 Emergencies to be attended to with urgency					
4.3.4 Radiology personnel to show willingness to assist elderly patients					
ASSURANCE					
4.4.1 To be able to trust the Radiology personnel to perform the correct procedure					
4.4.2 To feel safe in the care of the Radiology personnel					
4.4.3 Radiology personnel to always be polite during my visits to the Radiology facility					
4.4.4 The approach and professionalism of Radiology personnel to instill confidence in me					
4.4.5 To be able to trust the Radiology personnel to retain confidentiality regarding my visit/treatment/condition					
EMPATHY					
4.5.1 The behavior/approach of Radiology personnel to indicate that they understand elderly patients					
4.5.2 The Radiology personnel to understand my specific needs, as an elderly person					
4.5.3 The Radiology personnel to give me personal attention during my appointments					
4.5.4 The Radiology personnel to always treat me with dignity					
4.5.5 To always feel that the Radiology personnel have my best interests at heart					
4.5.6 The Radiology facility to try to keep my waiting time to a minimum					
ACCESSIBILITY					
4.6.1 The Radiology facility to be convenient for me to access (transportation)					
4.6.2 There to be adequate, convenient parking and drop-off points for me and other patients at this Radiology facility					
4.6.3 The operation hours of this Radiology facility to be convenient for me					
4.6.4 It to be easy to contact this Radiology facility to book an appointment/get information I need					
COMMUNICATION					
4.7.1 To be told why I need a specialized Radiology examination					
4.7.2 To be informed what Radiology examination I have come for					
4.7.3 The Radiology personnel to inform me of what preparation is required for the examination prior to the appointment					
4.7.4 The Radiology personnel to inform me of what the examination entails					
4.7.5 The Radiology admin staff to provide me with the information I need during the booking of my appointment (e.g. payment method, medical aid involvement)					

THANK YOU FOR YOUR TIME

UMHLAHLANDLELA WEMIBUZO - ISIZULU

Isigaba sokuqala

Kumbuzo ngamunye, khetha inketho **EYODWA YEMPENDULO** esebenza kangcono kuwe.

1.2 Ingabe uyisiguli sezokwelapha esidinga ukuhlolwa kweRadiology?

Yebo	Cha

1.3 Ithini iminyaka yakho yobudala?

Iminyaka engama-60 kuye kwengama-69	Iminyaka engama-70 kuye kwengama-79	Iminyaka engu-80 +

1.8 Isimo sakho somshado

Awushadile	Ushadile	Umfelokazi/ Ohlukanisile / Ohlukene

1.9 Ingabe ungumuntu olaliswe esibhedlela noma ulalelwa ngaphandle?

Esigulini	Isiguli sangaphandle

1.10 Ungena kangaki ezivivinyweni zeRadiology?

Okungenani kanye ngenyanga	Okungenani njalo ezinyangeni ezi-4	Okungenani njalo ezinyangeni eziyisi-6	Okungenani kanye ngonyaka	Ngaphansi kokukodwa ngonyaka

1.11 Ingabe ukuhlolwa kwe-Radiology namuhla kwesifo esisanda kutholakala noma ingabe lokhu kuyinqubo yakho yokulandelela ukuhlolwa/ukuhlolwa?

Isimo sezokwelapha esisanda kutholwa	Ukuhlolwa okujwayelekile/ukuhlolwa

1.12 Ingabe uyisiguli semali noma unohlelo lwe-medical aid?

Imali	I-Medical Aid

1.9 Ngabe ukhona okuphelezelayo uma uyohlolwa iRadiology (abangane/umndeni)?

Yebo, njalo	Ngezinye izikhathi	Cha

1.8.1 Uma uthi yebo embuzweni ongenhla, cacisa uma udinga usizo lothile noma ufuna nje inkampani usalinde izivivinyo zakho?

Udinga usizo	Ufuna inkampani

1.9 Uhamba kanjani uma uye e-apthoyintimenti yakho yezokwelashwa nge-Radiology?

Ezokuthutha ezizimele	Ezokuthutha zomphakathi	Hamba

Isigaba sesibili

Bonisa izinga lakho lokuvumelana nalezi zitatimende ezilandelayo maqondana nokuhlangenwe nakho **KWAKHO** kulesi sikhungo seRadiology.

Ngokuhlangenwe nakho kwami ...	Angivumi neze	Angivumi	Ukungathathi hlangothi	Vuma	Ngivume kakhulu
TANGIBLES					
3.1.1 Isikhungo seRadiology sinemishini yesimanjemanje					
3.1.2 Izinsiza ze-Radiology ezifana namakamelo okushintshela nezindawo zokuphumula zihlanzekile futhi zihlale zinakekelwe kahle.					
3.1.3 Ukuma kwesakhiwo sendawo yeRadiology kuyathandeka					
3.1.4 Abasebenzi beRadiology bagqoke ngendlela efanele nangomsebenzi womsebenzi					
3.1.5 Isakhiwo sesikhungo se-Radiology senza kube lula ezigulini esezikhulile ukuthi zingene endleleni					
UKWETHEMBEKA					
3.2.1 Isikhungo seRadiology sihlizeka ngemisebenzi yaso ngesikhathi esithembisa ukukwenza lokho					
3.2.2 Ngingathembela kubasebenzi beRadiology benza konke okusemandleni abo ukubhekana nezidingo zami					
3.2.3 Isikhungo seRadiology sigcina amarekhodi esiguli anembile					
3.2.4 Ukuhlolwa kweRadiology kwenziwa ngendlela efanele okokuqala					

3.2.5 Abasebenzi beRadiology bayangihlola ngesikhathi sokuhlolwa kwami/ngenqubo					
Ngokuhlangenwe nakho kwami ...	Angivumi neze	Angivumi	Ukungathathi hlangothi	Vuma	Ngivume kakhulu
UKUPHENDULA					
3.3.1 Abasebenzi beRadiology basingatha imibuzo yami nezikhalo zami ngokuqondile nangokuphazima kweso					
3.3.2 Abasebenzi be-radiology basabela ngokushesha nangempumelelo ezidingweni zami					
3.3.3 Izimo eziphuthumayo zinakekelwa ngokushesha					
3.3.4 Abasebenzi be-radiology bakhombisa ukuzimisela ukusiza iziguli esezikhulile					
ISIQINISEKISO					
3.4.1 Ngiyabathemba abasebenzi beRadiology ukuthi bazokwenza inqubo efanele					
3.4.2 Ngizizwa ngiphephile lapho nginakekelwa ngabasebenzi beRadiology					
3.4.3 Abasebenzi beRadiology bahlale benesizotha ngesikhathi ngivakashele isikhungo seRadiology					
3.4.4 Indlela yokusebenza nobungcweti babasebenzi beRadiology ifaka ukuzethemba kimi					
3.4.5 Ngiyabathemba abasebenzi beRadiology ukuthi bagcine imfihlo mayelana nokuvakasha kwami/ukwelashwa/isimo sami.					
UKUDWELA					
3.5.1 Indlela yokuziphatha/indlela yabasebenzi beRadiology ikhombisa ukuthi bayazazi iziguli esezikhulile					
3.5.2 Abasebenzi beRadiology bayaziqonda izidingo zami ezithile, njengomuntu osekulile					
3.5.3 Abasebenzi beRadiology banginikeza usizo lomuntu siqu ngesikhathi sami sokuqokwa					
3.5.4 Abasebenzi beRadiology bahlale bengiphatha ngesithunzi					
3.5.5 Ngihlale nginomuzwa wokuthi abasebenzi be-Radiology banentshisekelo yami enhle enhliziyweni yami					
3.5.6 Isikhungo seRadiology sizama ukugcina isikhathi sami sokulinda sibe sincane					
UKUFINYELELA					
3.6.1 Isikhungo seRadiology singilungele ukufinyelela (ezokuthutha)					
3.6.2 Kukhona indawo yokupaka eyanele, efanelekile kanye nezindawo zokulahla mina nezinye iziguli kulesi sikhungo seRadiology.					
3.6.3 Amahora okusebenza alesi sikhungo seRadiology angilungele					

3.6.4 Kulula ukuthintana nalesi sikhungo seRadiology ukuze ubhukhe isikhathi sokubonana/uthole ulwazi engiludingayo					
Ngokuhlangenwe nakho kwami ...	Angivumi neze	Angivumi	Ukungathathi hlangothi	Vuma	Ngivume kakhulu
UKUXHUMANA					
3.7.1 Ngitshele ukuthi kungani ngidinga ukuhlolwa okukhethekile kweRadiology					
3.7.2 Ngazisiwe ukuthi ngize ngani ukuhlolwa kweRadiology					
3.7.3 Abasebenzi beRadiology bangazisa ngamalungiselelo adingekayo ngaphambi kokuqashwa					
3.7.4 Abasebenzi beRadiology bangazisa ngokuthi ukuhlolwa kuhlenganisani					
3.7.5 Abasebenzi abaphethe iRadiology bangihlinzeka ngolwazi engiludingayo ngesikhathi ngibhukha isikhathi sami sokuqokwa (isb. indlela yokukhokha, ukubandakanyeka kwe-medical aid)					

Isigaba Sesithathu

Bonisa izinga lakho lokuvumelana nalezi zitatimende ezilandelayo mayelana **OKULINDELEKILE** kulesi sikhungo seRadiology.

Ngilindele...	Angivumi neze	Angivumi	Ukungathathi hlangothi	Vuma	Ngivume kakhulu
TANGIBLES					
4.1.1 Isikhungo seRadiology sibe nemishini yesimanje					
4.1.2 Izinsiza ze-Radiology ezifana namakamelo okushintshela nezindawo zokuphumula kufanele zibe nempilo futhi zinakekelwe kahle.					
4.1.3 Isakhiwo sesakhiwo sesikhungo seRadiology sizohheha					
4.1.4 Abasebenzi beRadiology kufanele bagqoke ngendlela efanele nangobungcweti					
4.1.5 Isakhiwo sesikhungo seRadiology sizoba lula ezigulini esezikhulile ukuthi zikwazi ukusisebenzisa					
UKWETHEMBEKA					
4.2.1 Isikhungo seRadiology ukuthi sihlizwe ngezinsiza ngesikhathi esithembisa ukukwenza lokho					
4.2.2 Abasebenzi beRadiology benze konke okusemandleni abo ukubhekana nezidingo zami					

4.2.3 Isikhungo seRadiology ukugcina amarekhodi esiguli anembile					
4.2.4 Ukuhlolwa kweRadiology okufanele kwenziwe ngendlela efanele okokuqala					
4.2.5 Abasebenzi beRadiology abazongibheka ngesikhathi sokuhlolwa kwami/ngenqubo					
Ngilindele...	Angivumi neze	Angivumi	Ukungathathi hlangothi	Vuma	Ngivume kakhulu
UKUPHENDULA					
4.3.1 Abasebenzi beRadiology bazosingatha imibuzo yami kanye nezikhalo zami ngqo futhi ngokushesha					
4.3.2 Abasebenzi beRadiology ukuthi baphendule ngokushesha nangempumelelo ezidingweni zami					
4.3.3 Izimo eziphuthumayo okufanele zibhekwane nazo ngokushesha					
4.3.4 Abasebenzi be-radiology ukukhombisa ukuzimisela ukusiza iziguli esezikhulile					
ISIQINISEKISO					
4.4.1 Ukwazi ukwethemba abasebenzi beRadiology ukuthi benze inqubo efanele					
4.4.2 Ukuzizwa uphephile lapho unakekelwa abasebenzi beRadiology					
4.4.3 Abasebenzi beRadiology kufanele bahlale benenhlonipho ngesikhathi ngivakashele isikhungo seRadiology					
4.4.4 Indlela kanye nobungcweti babasebenzi beRadiology ukutshala ukungethemba					
4.4.5 Ukuze ngikwazi ukwethemba abasebenzi beRadiology ukuthi bagcine imfihlo mayelana nokuvakasha kwami/ukwelashwa/ isimo sami.					
UKUDWELA					
4.5.1 Indlela yokuziphatha/indlela yabasebenzi be-Radiology ukukhombisa ukuthi bayaziqonda iziguli esezikhulile					
4.5.2 Abasebenzi beRadiology ukuze baqonde izidingo zami ezithile, njengomuntu osekhulile					
4.5.3 Abasebenzi beRadiology ukuthi bangibhekelele mathupha ngesikhathi ngiqokwa					
4.5.4 Abasebenzi beRadiology ukuthi bahlale bengiphatha ngesizotha					
4.5.5 Ukuhlale nginomuzwa wokuthi abasebenzi beRadiology bangifunela okungcono kakhulu enhliziyweni					
4.5.6 Isikhungo seRadiology sizame ukugcina isikhathi sami sokulinda sibe sincane					
UKUFINYELELA					
4.6.1 Indawo yeRadiology izoba lula kimi ukufinyelela (ezokuthutha)					
4.6.2 Kumelwe kube nezindawo zokupaka ezanele, ezilungele kanye nezindawo zokulahla mina nezinye iziguli kulesi sikhungo seRadiology.					
4.6.3 Amahora okusebenza alesi sikhungo seRadiology azongilungela					
4.6.4 Kube lula ukuthintana nalesi sikhungo seRadiology ukuze ubhukhe isikhathi sokubonana/uthole ulwazi engiludingayo					
UKUXHUMANA					
4.7.1 Ukutshelwa ukuthi kungani ngidinga ukuhlolwa okukhethekile kwe-Radiology					

4.7.2 Ukwaziswa ngokuhlolwa kweRadiology engikuzele					
4.7.3 Abasebenzi beRadiology bangazise ngamalungiselelo adingekayo ngaphambi kokuqashwa					
4.7.4 Abasebenzi Be-Radiology ukuze bangazise ngalokho ukuhlolwa kuhlenganisa					
4.7.5 Abasebenzi abaphethe iRadiology ukuze banginikeze ulwazi engiludingayo ngesikhathi ngibhukha isikhathi sami sokuqokwa (isb. indlela yokukhokha, ukubandakanyeka kwe-medical aid)					

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and public Radiology healthcare facilities to ensure a positive contribution to their quality of life.

1.2 PROBLEM STATEMENT

Elderly patients require the frequent use of health care due to their health concerns, which involves receiving medical care that is prompt and caring. It is also assumed that private Radiology healthcare is generally thought to offer outstanding clinical service quality than public healthcare, even though expensive does not always mean superior (Maphumulo and Bhengu 2019: 2). According to the literature, there is currently a high prevalence of general healthcare complaints concerning clinical treatment quality and the lack of respect provided to senior people (Naidoo and Van Wyk 2019: 1). Naidoo and Van Wyk (2019: 2) further state that in private and public Radiology clinics, there is currently much focus on policies and procedures to improve clinical service quality for the elderly.

Therefore, the implementation of measures to guarantee that senior patients obtain the best clinical service experience when visiting Radiology facilities in the Etheke wini

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