

Operational challenges and financial sustainability of delivering dialysis services in South Africa

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DECLARATION

I, Tharesni Avanasigan, declare that, except for what is mentioned in the references and acknowledgements, this research study is entirely my own. This submission serves as a partial satisfaction of the prerequisites for the Master of Business Administration degree at the University of the Witwatersrand, Johannesburg's Graduate School of Business Administration. It has never been turned in for a test or degree at this university or any other.

A handwritten signature in black ink, appearing to read 'Tharesni Avanasigan', with a stylized initial 'A'.

Tharesni Avanasigan

Signed at: Cape town.

On the 6th day of February 2024.

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ABSTRACT

The provision of dialysis services in South Africa presents a multifaceted landscape which is characterised by both operational challenges and financial sustainability concerns. This study explores the intricate dynamics and impediments faced within the healthcare system and focuses on the delivery of dialysis services.

The reviewed literature examined the operational complexities which encompass limited access to resources, inadequate infrastructure, shortage of skilled personnel, and geographic disparities that impede the delivery of services.

Moreover, the financial sustainability of dialysis services is a critical issue, and is compounded by the high costs for equipment, consumables, and maintenance, coupled with limited funding and reimbursement mechanisms.

This study aims to shed light on the complexity surrounding the provision of dialysis services in South Africa. The challenges are synthesised and methods to enhance operational efficiency and acquire financial sustainability within the healthcare system is recommended.

Keywords

Financial Sustainability

Healthcare

Operational Efficiency

Infrastructure

Skill Personal

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CHAPTER 1: INTRODUCTION

1.1. Statement of purpose

This qualitative study explored the operational challenges and financial sustainability of the delivery of dialysis services in South Africa.

The provision of adequate and sustainable dialysis services in South Africa is of critical concern within the realms of healthcare delivery (Mushi, 2018; Naicker et al., 2017). As a researcher committed to comprehend and address the intricate challenges which impede the effective administration of these services, the purpose was to investigate the operational intricacies and financial barriers that impedes the accessibility and sustainability of dialysis care in this region.

The objective was to illuminate the multifaceted landscape of operational challenges which healthcare systems face in the delivery of dialysis services, including but not limited to resource scarcity, infrastructural inadequacies, workforce shortages, and geographical disparities (Mushi, 2018; Naicker et al., 2017).

Furthermore, the goal was to provide a thorough examination of the financial elements, highlight the complexity related to expensive equipment, purchase of consumables, maintenance costs, and the restricted funding to maintain dialysis services (Osafo et al., 2020; Moosa, 2016).

Another objective of this study was to provide significant insight into the systemic barriers which inhibits effective and long-term dialysis service delivery in South Africa. Through the integration of extensive reviewed literature, empirical data, and field observations, the objective was to propose feasible approaches and policy directives to augment operational efficacy and foster fiscal viability in the nation's healthcare framework.

Finally, the intention was to provide concrete responses and recommendations which would have an effect on the availability, calibre, and sustainability of dialysis services in South Africa. This would result in enhanced health outcomes and a greater sense of overall wellbeing for those who depend on these vital medical treatment (Osafo et al., 2020; Moosa, 2016).

1.2. Background of the study

South Africa is experiencing an increasing burden of chronic kidney disease (CKD) and end-stage renal disease (ESRD), necessitating effective and sustainable dialysis services to address the healthcare needs of affected individuals (Davids et al., 2019; Moosa, 2016). The prevalence of CKD has escalated due to factors such as hypertension, diabetes, and infectious diseases, driving the heightened demand for dialysis services (Mushi, 2018; Okpechi et al., 2017).

Despite these mounting healthcare demands, the provision of dialysis services experiences multifaceted operational challenges. The limited availability of resources, such as dialysis facilities, equipment, and consumables, presents a significant obstacle to the accessible delivery of services (Naicker et al., 2017; Osafo et al., 2020). Moreover, inadequate infrastructure and geographical disparities exacerbate the difficulties to provide consistent and equitable dialysis care, particularly in remote or underserved regions (Mushi, 2018; Naicker et al., 2017).

Financial sustainability further compounds these challenges. High costs associated with the procurement of dialysis equipment, maintenance, and the recurrent expenses of consumables is a strain on the healthcare budget (Osafo et al., 2020; Moosa, 2016). Inadequate allocation of funding and limited reimbursement mechanisms contributes towards the financial burden, and thereby jeopardises the long-term viability of dialysis services (Osafo et al., 2020; Moosa, 2016).

It is imperative to comprehend these impediments to formulate measures to manage the operational inadequacies and budgetary limitations which inhibits the efficient provision of dialysis services in South Africa. A comprehensive investigation of these complexities could result in workable solutions to increase accessibility to services, boost operational effectiveness, and guarantee the financial viability of the nation's healthcare system.

1.2.1 Context of the study

The study was situated within the context of South Africa's healthcare system, which is a complex environment characterised by socio-economic disparities and healthcare challenges (Naidoo et

al., 2018). The research focused specifically on the delivery of dialysis services, which plays a crucial role to address kidney-related health issues in the population.

In the South African context, operational challenges within healthcare systems have been widely acknowledged, including issues related to limitations of the workforce and allocation of resources (Matsoso & Fryatt, 2016). Dialysis services, which is a specialised and resource-intensive aspect of healthcare, is likely influenced by these broader challenges.

The qualitative research design was adopted for this study and aligned with the call for context-specific investigations in healthcare, and thereby conducted an in-depth investigation of the lived experiences and perspectives of healthcare professionals, patients, and stakeholders (Creswell & Creswell, 2017).

By focusing on the qualitative aspects, the study sought to capture the complexities of operational challenges and financial sustainability in the delivery of dialysis services within the South African healthcare context (Silverman, 2016). It is anticipated that the findings would provide a rich narrative to make a valued contribution to policymakers, healthcare practitioners, and stakeholders who are involved in shaping the trajectory of dialysis care in South Africa.

1.2.2 Importance of this study in South Africa

This study is of paramount significance within the South African healthcare landscape and addressed crucial issues in the delivery of dialysis services. South Africa faces persistent healthcare inequalities and disparities (Naidoo et al., 2018). This research was conducted to contribute significantly towards addressing these challenges.

By exploring the operational challenges and financial sustainability of dialysis services, the study endeavoured to inform policies and strategies to limit healthcare disparities, enhance the allocation of resources, and enhance overall healthcare equity (Matsoso & Fryatt, 2016). The burden of kidney disease is a considerable concern globally and within South Africa, and the findings from this study endeavoured to provide essential insight of how to manage and mitigate this burden effectively.

Furthermore, the study focused on long-term sustainability and aligned with the broader goal to build a resilient and efficient healthcare system which would meet the specific needs of the South African population, and thereby underscore the significance of informed policy development and capacity building (Matsoso & Fryatt, 2016).

1.3. Research problem

South Africa grapples with a burgeoning burden of chronic kidney disease (CKD), which requires an effective dialysis service. However, it faces substantial operational challenges and financial constraints to provide adequate care (Mushi, 2018; Moosa, 2016). Within this context, the research problem focused on the intersection of operational impediments and financial sustainability that impedes the efficient delivery of dialysis services in the country.

Operational challenges - The scarcity of resources, including limited dialysis facilities, equipment, and skilled personnel, poses significant challenges in the provision of accessible and equitable dialysis care (Naicker et al., 2017; Osafo et al., 2020). Furthermore, infrastructural inadequacies and geographical disparities further exacerbate these challenges, particularly in remote or underserved regions (Mushi, 2018; Naicker et al., 2017).

Financial sustainability - The financial viability to sustain dialysis services is compromised by high costs, for example, acquisition of equipment, recurring expenses for consumables, and maintenance. These aspects are a strain on the already constrained healthcare budget (Osafo et al., 2020; Moosa, 2016). Inadequate reimbursement mechanisms and insufficient funding exacerbate the financial burden and threatens the continuity and quality of dialysis care (Osafo et al., 2020; Moosa, 2016).

The complex link between these budgetary limitations and operational difficulties provided a challenging research question which had an immediate bearing on the long-term viability, affordability, and accessibility of dialysis services in South Africa. To guarantee fair access to care and limit the effects of negative health connected to untreated or inadequately managed CKD, it is imperative that these challenges are addressed.

The qualitative research methodology was selected to respond to the research question. This research approach is comprehensive and focuses on understanding and interpreting human behaviour, experiences, and social phenomena in a natural context. It is a non-numerical data collection method, that is, interviews, surveys, and observations are conducted to gather rich and detailed insight into the participants' perspectives.

Qualitative research is particularly suitable to capture the contextual nuances, identify patterns, and explore the intricacies of operational challenges and financial considerations within the South African healthcare system. It allows flexibility to adapt the research approach based on emerging themes and ensure a holistic exploration of the research questions.

1.4. Research Objectives

Objective 1: Operational barriers - Investigate and analyse the operational barriers which impede the efficient delivery of dialysis services, including the scarcity of resources, workforce limitations, and regional disparities.

Objective 2: Assess financial constraints - Evaluate financial challenges, for example, high cost of equipment, recurring expenses, and inadequate funding which affects sustainable dialysis services.

Objective 3: Develop targeted strategies - Formulate practical interventions to address identified operational challenges to enhance accessibility, quality, and equity in dialysis care.

1.5. Justification of the study

This study was justified by the urgent need to address and comprehend the operational and financial sustainability challenges which surrounds dialysis services in South Africa. The country's healthcare system grapples with persistent inequalities and resource allocation (Naidoo et al., 2018). Hence, it was imperative to investigate these aspects within the context of dialysis care. The burden of kidney disease is substantial, and the study aligned with the global call to

improve the management of such conditions (Matsoso & Fryatt, 2016). By shedding light on the unique challenges faced in the delivery of dialysis services, this research contributed towards the broader discourse on disparities in healthcare and resource allocation as well as actionable insight which could inform targeted interventions and policy reforms, and thereby ultimately enhance the overall effectiveness and sustainability of dialysis services in South Africa.

1.6. Delimitations of the study

Geographical focus - This study focused specifically on South Africa. Hence, it would probably not fully capture or represent the diverse challenges experienced in other countries or regions. Consequently, the generalisability of the findings to a broader global context would likely be limited (Naicker et al., 2017).

Time constraints - The findings could be influenced by the specific time frame during which data were collected or analysed. Amendments to healthcare policies, changes to economic conditions, or healthcare infrastructure after the collection of data would probably not be reflected in the study. Hence, the current relevance of recommendations could be compromised (Osafo et al., 2020).

Availability of data - Limitations in the availability or access to specific datasets, especially in the healthcare domain, could have affected the comprehensive analysis of the study. Furthermore, accuracy and completeness of the gathered data could pose challenges and have an impact on the extent of the research findings (Mushi, 2018).

Scope of considered factors - While the study aimed to address operational challenges and financial sustainability, it could not encompass all contributory factors or intricacies which affects the delivery of dialysis services. Factors such as cultural aspects, patient perspectives, or regulatory frameworks could be relevant but delimited due to the specific focus of the study (Moosa, 2016).

Research methodology - The choice of research methods, such as qualitative or quantitative approaches, could present limitations to capture nuanced insight or statistical generalisability, and thereby impact on the depth and breadth of the findings (Mushi, 2018; Naicker et al., 2017).

1.7. Operational definitions

Operational challenges:

- Resource Scarcity: Inadequacy or insufficiency of dialysis facilities, equipment, consumables, and trained healthcare personnel within a specific geographic area or healthcare setting.
- Geographical disparities: Quantifiable differences in the distribution and accessibility of dialysis services in various regions or locations within South Africa, as well as highlight discrepancies in the availability, distance to facilities, or infrastructure for services.

Financial sustainability:

- High equipment costs: Specifically quantifiable expenses associated with the procurement, installation, and maintenance of dialysis machines, filtration systems, or other necessary equipment within the healthcare system.
- Recurring expenses: Ongoing costs related to consumables, such as dialyzers, tubing, and solutions required for each dialysis session.
- Funding mechanisms: Identifiable methods or models for the allocation of financial resources, including governmental subsidies, insurance reimbursements, or private investments, to sustain dialysis services over time.

Quality of dialysis services:

- Clinical outcomes: Measurable indicators such as mortality and, rate of infections, or patient recovery frequency post-dialysis treatment sessions.

- Patient satisfaction: A quantitative or qualitative measure of patients' perceptions, experiences, or reported satisfaction levels with the received dialysis care, including aspects such as waiting times, staff behaviour, or cleanliness of facilities.

Operational efficiency enhancements:

- Resource utilisation: Measurement of the effectiveness and efficiency to utilise available resources (equipment, personnel, consumables) to deliver dialysis services.
- Workflow optimisation: Enhance processes or protocols to limit delays, optimise patient scheduling, and streamline operational procedures within dialysis facilities.

1.8. Assumptions

Several assumptions underpinned the foundation of this study, which included the availability and accuracy of comprehensive data regarding dialysis facilities, patient demographics, and financial records (Mushi, 2018; Naicker et al., 2017). Furthermore, the assumptions involved the consistency of healthcare infrastructure and the reliability of reported information from such institutions and stakeholders within the country's healthcare system (Moosa, 2016; Osafo et al., 2020). These assumptions served as underlying principles but merited acknowledgment because potential limitations had an impact on the scope and conclusions of this study.

1.9. Structure of the Dissertation

Outline of the structure of this study:

1. Introduction

- ❖ Background and context of the study.
- ❖ Research problem and objectives.
- ❖ Rationale for selecting qualitative surveys.
- ❖ Overview of the structure of the dissertation.

2. Literature review

- ❖ Overview of dialysis services in South Africa
- ❖ Review of literature of operational challenges in the provision of dialysis services (qualitative perspectives)
- ❖ Examination of financial sustainability models in healthcare (qualitative aspects)
- ❖ Theoretical framework to guide the qualitative survey approach.

3. Methodology

- ❖ Explanation of the qualitative approach through surveys.
- ❖ Rationale for selecting surveys as the primary data collection method.
- ❖ Survey design, development, and validation process.
- ❖ Sampling strategy and selection of participants.
- ❖ Data collection procedures and ethical considerations.

4. Operational challenges in the delivery of dialysis services (Qualitative Insight from Surveys)

- ❖ Presentation of survey findings on operational challenges.
- ❖ Thematic analysis of qualitative data from surveys.
- ❖ Illustrative quotes or narratives of operational difficulties.
- ❖ Comparison and alignment of findings with reviewed qualitative literature.

5. Financial sustainability of dialysis services (Qualitative Perspectives from Surveys)

- ❖ Presentation of survey findings on financial aspects.
- ❖ Interpretation of qualitative data related to financial sustainability.
- ❖ Excerpts or key insight from survey responses regarding financial constraints.
- ❖ Discussion of qualitative findings in the context of financial theories or models.

6. Strategies to enhanced service delivery and sustainability.

- ❖ Derived from qualitative surveys, propose interventions or strategies.
- ❖ Recommendations based on qualitative data to address operational and financial challenges.
- ❖ Qualitative analysis which supports proposed strategies.

7. Discussion and analysis

- ❖ Comprehensive discussion of qualitative findings.
- ❖ Integration of operational and financial insight from surveys.
- ❖ Implications of qualitative data for practice and policy.
- ❖ Limitations and strengths of adopted qualitative approach.

8. Conclusion

- ❖ Summary of key qualitative findings.
- ❖ Recapitulation of research objectives and fulfilment thereof.
- ❖ Final remarks, implications for practice, and recommendations.
- ❖ Suggestions for future research based on qualitative insights.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The reviewed literature comprised of the complexities of the provision of dialysis services in South Africa within the context of chronic kidney disease (CKD). This chapter aims to explore existing scholarly works, highlight operational impediments such as scarcity of resources, geographical disparities, and financial constraints (Mushi, 2018; Naicker et al., 2017; Osafo et al., 2020). These challenges encompass insufficient facilities, equipment, and trained personnel, which is further compounded by uneven distribution of services as well as extreme financial liabilities (Mushi, 2018; Naicker et al., 2017; Osafo et al., 2020; Moosa, 2016). The reviewed literature endeavours address these operational and financial complexities; existing gaps and offer a comprehensive understanding of the multifaceted challenges faced by dialysis services in South Africa.

2.1.1 Benefits of conducting this study

Improved healthcare delivery: Understanding and addressing operational challenges can result in the delivery of enhanced and efficient dialysis services, ensure better access, limit the waiting period, and improved quality of services to patients with chronic kidney disease.

Financial efficiency: Identifying financial constraints and proposing sustainable funding models can contribute towards better allocation of resources, cost-effectiveness, and optimised utilisation of healthcare budgets. This could potentially limit the economic burden on healthcare systems.

Equitable access: By highlighting geographical disparities and scarcity of resources, this study could inform targeted interventions to limit inequalities in healthcare, and thereby ensure equitable access to dialysis services across various regions within South Africa.

Policy insights: The findings from this study and recommendations could provide valuable insight for policymakers and healthcare administrators, which could enable to amend or formulate policies, re-consider reimbursement mechanisms, as well as funding models to support the sustainable provision of dialysis services.

Improved health outcomes: Addressing operational challenges and ensuring financial sustainability could have a direct impact on health outcomes for individuals who are dependent on dialysis services. This could potentially reduce the mortality rate, complications, and enhance their overall quality of life.

Research contribution: This study contributed to the body of knowledge by bridging the gaps in a clearer understanding of the complexities of delivering dialysis services in South Africa. Consequently, the study served as a foundation for future research, policy formulation, and interventions in nephrology and healthcare management.

Patient and stakeholder empowerment: The observations acquired from the study could empower patients, healthcare providers, and stakeholders to foster a better understanding of the challenges and facilitate collaborative efforts to address these and thereby enhance patient care and satisfaction.

2.1.2 Challenges conducting this study.

Data availability and quality - Accessing comprehensive and accurate data regarding dialysis facilities, patient demographics, financial records, and healthcare policies could be a challenge. Data quality concerns included incomplete or outdated information. This could limit the extent and reliability of the study.

Resource constraints – To conduct comprehensive surveys or qualitative research could require substantial resources, including funding, time, and skilled personnel. Limited resources could potentially restrict the scope of the study or reach a diverse sample.

Complexity and multifaceted nature - The subject matter involved multifaceted challenges, including operational difficulties and financial complexities. The navigation of these multifaceted issues within a single study could be a challenge and possibly require a nuanced approach.

Ethical considerations - Ensure adherence to the ethical guidelines during the data collection, phase, especially patient information and sensitive healthcare data, presented a challenge.

Respecting patient privacy and confidentiality during the data gathering phase was crucial but could be a challenge to navigate.

Geographical variations - South Africa's diverse geography and varying healthcare infrastructure across regions could pose a challenge to acquire a representative sample, because certain areas could have limited access to dialysis facilities or various operational setups.

Changing healthcare landscape - Rapid amendments to healthcare policies, regulations, or economic conditions during the study could impact on the relevance and applicability of the findings. An update of relevant information during these changes posed a challenge.

Stakeholder cooperation – To acquire cooperation and participation from various stakeholders, including healthcare providers, institutions, and patients, could present challenges due to potential time constraints, opposing priorities, or reluctance to share information.

2.1.3 Ethical considerations

This study upheld key ethical principles, including completion of informed consent forms by the participants which included healthcare providers, patients, and stakeholders. Furthermore, their privacy and confidentiality of information was safeguarded. It is important to, inter alia, respect participant autonomy, cultural sensitivities, and minimise potential risks as well as ensure data security, impartiality, and transparency throughout the study. To engage with communities and acquire approval from relevant ethics committees further underscored the commitment towards ethical conduct, and thereby ensured that the study-maintained integrity, respect the participants' rights, and uphold all prescribed ethical guidelines.

2.1.4 Background

Chronic kidney disease (CKD) is a prevalent global health issue, and has a significant impact on healthcare systems, particularly in low- and middle-income countries (Mushi, 2018; Moosa, 2016). Within South Africa, the CKD burden and end-stage renal disease (ESRD) requires access to effective dialysis services to manage the growing number of affected individuals

(Naicker et al., 2017). However, the delivery of these essential services faces multifaceted challenges, which range from operational constraints to financial sustainability issues. Operational challenges encompass scarcity of resources, insufficient dialysis facilities, equipment, and a shortage of adequately trained personnel. These challenges are compounded by geographical disparities which affects equitable access to the medical service (Naicker et al., 2017; Osafo et al., 2020). Financial sustainability concerns arise as a result of high cost for equipment, recurring expenses for consumables, and limitations to fund mechanisms in the healthcare budget (Mushi, 2018; Osafo et al., 2020). It is critical to comprehend these challenges in order to formulate interventions to enhance accessibility and long-term viability of dialysis services in South Africa.

2.1.5 Empirical review of literature

In South Africa, the prevalence of the chronic kidney disease (CKD) has escalated and resulted in an increased demand for dialysis services (Naicker et al., 2017). The literature revealed persistent challenges in this domain, including the scarcity of resources and geographical disparities (Mushi, 2018; Naicker et al., 2017). The scarcity of resources encompasses inadequate dialysis facilities, equipment, and a shortage of trained healthcare personnel. Thus, the provision and access affect the service (Naicker et al., 2017; Osafo et al., 2020). Moreover, geographical disparities exacerbate these challenges, which results in disproportionate access to dialysis services, particularly in remote or underserved regions (Mushi, 2018; Naicker et al., 2017). Financial sustainability poses another critical impediment due to high cost for equipment, recurring expenses for consumables, and inadequate funding mechanisms (Osafo et al., 2020; Moosa, 2016). The reviewed literature underscored the need for interventions to address these challenges comprehensively and ensure equitable and sustainable dialysis care delivery in South Africa.

2.2 Identification of research gaps

The identification of gaps in the literature is essential because it was identified the lack of adequate investigation into the delivery of dialysis services in South Africa. The following potential research gaps revealed from the reviewed literature included:

1. **Limited focus on interventions:** A dearth of studies which focused on effective interventions or strategies to address specific operational challenges to enhance financial sustainability within dialysis services in South Africa.
2. **Regional disparities:** Existing literature could lack in-depth analyses of the impact of regional disparities on the delivery of dialysis services, particularly in remote or underserved areas of South Africa.
3. **Patient-centered perspectives:** There could be a gap in understanding the experiences, preferences, and the needs of patients who receive dialysis services. This is crucial in developing patient-centered care models.
4. **Economic evaluations:** There might be a lack of comprehensive economic evaluations or cost-effectiveness studies which assess the financial implications of various dialysis modalities or service delivery models.
5. **Long-term sustainability models:** Limited investigation is probable regarding sustainable funding models or long-term strategies to ensure the continuous provision of dialysis services amidst evolving healthcare policies and economic challenges.
6. **Technology and innovation:** The literature could likely lack recent investigations into the integration of technological advancements or innovative solutions to optimise dialysis service delivery and cost efficiency.
7. **Impact of amendments to policy:** There could be inadequate analysis of the impact of recent amendments to policy or healthcare reforms on dialysis service provision and financial sustainability in South Africa.

2.3 Research objectives

2.3.1 Objective 1: Operational impediments - Investigate and analyse operational barriers which impede efficient dialysis service delivery, including scarcity of resources, workforce limitations, and regional disparities.

An investigation of the operational barriers which impede efficient dialysis service delivery in South Africa revealed that multifaceted challenges have an impact on the healthcare system. The scarcity of resources, including inadequate dialysis facilities and the lack of equipment (Mushi, 2018; Naicker et al., 2017), compromises the provision of services significantly, and results in delays and poor-quality care (Naicker et al., 2017; Osafo et al., 2020). Moreover, the limitations in the healthcare workforce, characterised by the lack of trained personnel, for example, nephrologists and nurses. This poses substantial difficulties and results in increased workloads and compromises patient care (Mushi, 2018; Naicker et al., 2017). Geographical disparities further exacerbate these challenges, especially in remote areas. Thus, it impacts on accessibility due to limited infrastructure and increased travel distances for patients who seek dialysis treatment (Naicker et al., 2017; Osafo et al., 2020). An analysis of these barriers provides a comprehensive understanding of the impediments faced in the delivery of efficient dialysis services in South Africa. Hence, crucial insight of probable solutions and enhancements in the provision of the service is provided.

Proposition 1 - Implement a comprehensive strategy to addresses the scarcity of resources, enhance the healthcare workforce, and mitigate regional disparities is imperative to improve the efficiency and accessibility of dialysis services in South Africa.

2.3.2 Objective 2: Assess financial constraints - Evaluate financial challenges such as high cost of equipment, recurring expenses, and funding inadequacies which affects the sustainability of dialysis services.

An evaluation of the financial challenges which affects the sustainability of dialysis services in South Africa revealed significant impediments on the healthcare system. The high cost of equipment, which includes the initial procurement and maintenance expenses for dialysis

machines and associated infrastructure, inflicts a substantial financial burden (Mushi, 2018; Osafo et al., 2020). Recurring operational expenses, including consumables and maintenance services places a further strain on the healthcare budget. Consequently, financial planning and stability is affected (Osafo et al., 2020; Moosa, 2016). Moreover, inadequate funding mechanisms and limited financial resources allocated to dialysis services presents a critical challenge, in the provision of services and accessibility (Moosa, 2016; Osafo et al., 2020). It is crucial to address these financial challenges to ensure the sustainability and equitable accessibility of dialysis services in South Africa. Strategic financial planning and enhanced funding mechanisms could serve as probable solutions towards an effective and efficient dialysis service.

Proposition 2 - Develop a comprehensive financial framework that addresses the high cost of equipment, recurring expenses, and funding inadequacies to ensure the long-term sustainability and equitable accessibility to dialysis services in South Africa.

2.3.3 Objective 3: Develop targeted strategies - Formulate practical interventions to address identified operational challenges to enhance accessibility, quality, and equity in dialysis care.

The implementation of practical interventions to address operational challenges in dialysis care within South Africa entails a comprehensive approach to enhance accessibility, quality, and equity in service delivery. Initiatives such as telemedicine and remote monitoring offers potential solutions to bridge geographical disparities through the provision of remote specialised care and thereby enhance access to expert guidance and limit travel inconveniencies. Training and capacity building programmes for healthcare professionals can elevate the quality of care and alleviate limitations of the workforce. By leveraging Public-Private Partnerships (PPP) could address the scarcity of resources, facilitate the development of infrastructure and the acquisition of equipment. Community outreach initiatives which focus on education and preventive measures could promote equity by creating awareness amongst communities of the significance of the kidney. It is crucial that policy reformation targets enhanced funding mechanisms and increased healthcare budgets for renal services to ensure equitable access to dialysis services. These

multifaceted interventions collectively aim to overcome operational challenges, as well as foster enhanced provision of dialysis care in South Africa.

Proposition 3- - Develop and implement a multifaceted strategy that integrates telemedicine, capacity building, public-private partnerships, community outreach, and policy advocacy to enhance accessibility, quality, and equity in the provision of dialysis within South Africa.

2.4 Theoretical review of literature

A theoretical review of the literature on dialysis services, particularly within the context of South Africa, entailed the exploration of various theoretical frameworks pertinent to healthcare financing, service delivery, and healthcare systems. This included an examination of models such as the Health Financing for Universal Coverage (HFUC) framework, which offers insight into various financing strategies for healthcare services, dialysis, as well as service delivery frameworks such as the Donabedian Model to assess the quality of healthcare services. Theoretical frameworks related to healthcare systems, such as the WHO Health Systems Framework, shed light on the complexities and interaction amongst various components within the healthcare systems; provides a comprehensive understanding of the theoretical underpinnings which influences the provision of dialysis services; financial sustainability; and the dynamics of healthcare systems in South Africa (McIntyre et al., 2019; Donabedian, 1988; WHO, 2007)

2.4.1 Empirical review of the literature:

In South Africa, the prevalence of chronic kidney disease (CKD) has escalated. Consequently, there is an increased demand for dialysis services (Naicker et al., 2017). The reviewed literature revealed persistent challenges in this domain, including the scarcity of resources and geographical disparities (Mushi, 2018; Naicker et al., 2017). The scarcity of resources encompasses inadequate dialysis facilities, equipment, and a shortage of trained healthcare personnel, which affects the provision of services and accessibility (Naicker et al., 2017; Osafo et al., 2020). Moreover, geographical disparities exacerbate these challenges, and result in

uneven access to dialysis services, particularly in remote or underserved regions (Mushi, 2018; Naicker et al., 2017). Financial sustainability poses another critical impediment, and is marked by the high cost of equipment, recurring expenses for consumables, and inadequate funding mechanisms (Osafo et al., 2020; Moosa, 2016). The literature underscored the need for interventions to address these challenges comprehensively and thereby ensure equitable and sustainable delivery of dialysis care in South Africa.

The following are probable components of a theoretical framework for this study:

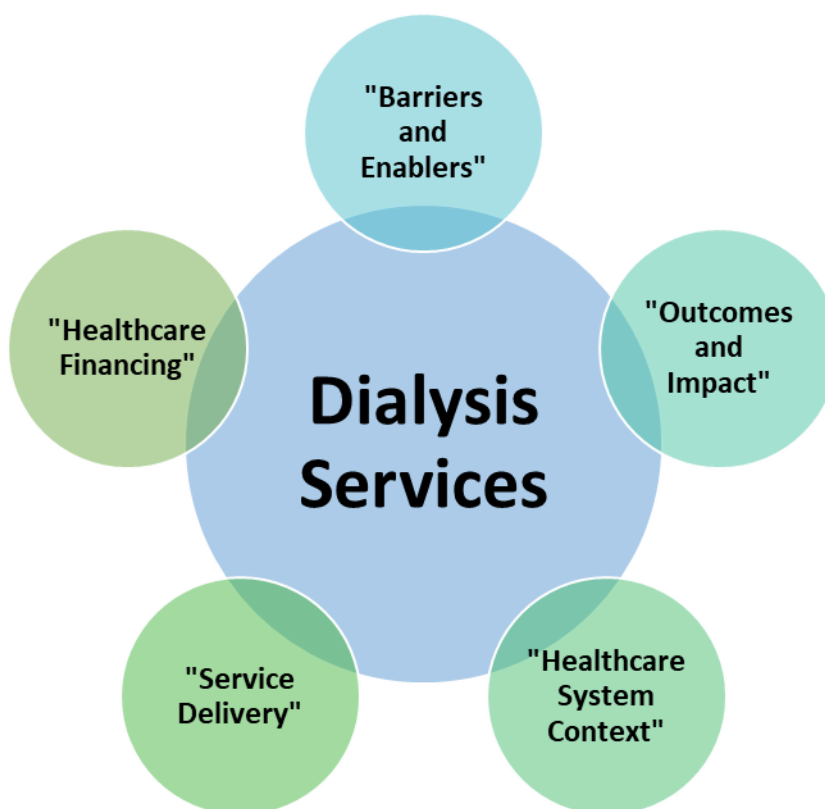
1. **Healthcare financing:** An assessment of the financing mechanisms specific to dialysis services is crucial (McIntyre et al., 2019). This assessment would involve the scrutiny of the funding sources, reimbursement models, and the financial sustainability of these services within the broader healthcare financing landscape.
2. **Service delivery:** The assessment should focus on accessibility, quality, and equity in the delivery of dialysis care (McIntyre et al., 2019). An analysis of the infrastructure, workforce capacity, adoption of technology, and patient-centered care within dialysis facilities would contribute towards understanding service delivery dynamics.
3. **Healthcare system dynamics:** An examination of interactions and interdependencies amongst the various components of the healthcare system with specific reference to dialysis services is crucial. This would include an evaluation of governance structures, policies, regulations, stakeholder collaborations, and the impact of contextual factors on the provision of services (WHO, 2007).
4. **Cost-benefit analysis:** A cost-benefit assessment of dialysis services is vital (McIntyre et al., 2019). This analysis should consider economic implications, cost-effectiveness, and societal impact to determine the value derived from these services.
5. **Patient outcomes and experience:** An evaluation of the patient outcomes, satisfaction, and experiences related to dialysis care is essential (McIntyre et al., 2019). The focus should be

on patient-reported outcomes, treatment adherence, and the impact on their quality of life would offer insight into effectiveness of the service.

6. **Policy and recommendations:** An integration of the findings to generate recommendations towards policies is crucial. Actionable strategies should be proposed to address identified gaps and challenges to enhance service delivery and sustainability (WHO, 2007).

An integration of these components would help to create a holistic analytical framework, provide a comprehensive assessment and guide policy recommendations for the provision of dialysis services in South Africa.

2.5. 2 Conceptual frameworks



Creating a conceptual framework to examine dialysis services in South Africa requires the consideration of various key components as outlined below:

Healthcare Financing: This segment concentrates on the financial underpinnings which supports dialysis services. It involves an analysis the sources of funding (McIntyre et al., 2019), reimbursement models, financial sustainability, and the implications of adequate funding for the provision of services.

Service delivery: Encompasses the actual delivery of dialysis care. This includes the evaluation of accessibility in terms of geographic and financial aspects (McIntyre et al., 2019), quality of care provided, availability of infrastructure, capacity of workforce, integration of technology, and patient-centeredness within dialysis facilities.

Healthcare system context: This facet examines the broader context within which dialysis services operate. It involves an assessment of the dynamics of the healthcare system, governance structures, policies, regulations, stakeholder collaboration, and the influence of socio-cultural, economic, and political factors on service delivery (WHO, 2007).

Outcomes and impact: The focus is on the evaluation of the outcomes acquired from dialysis services. This includes an analysis of patient outcomes, adherence to treatment, quality of life, as well as the societal and economic impact of providing dialysis care.

Barriers and enablers: Barriers which impede optimal dialysis service delivery (McIntyre et al., 2019) such as scarcity of resource, workforce limitations, and geographical disparities are identified, while the enablers which enhance service provision, such as technological advancements and strategic partnerships is examined.

By integrating these components, the conceptual framework endeavours to provide a comprehensive understanding of the intricate dynamics which surrounds dialysis services in South Africa within the broader healthcare context.

2.5.3 Conclusion of literature review

"In conclusion, the reviewed literature offers valuable insights into the multifaceted challenges and complexities surrounding dialysis services in South Africa. The studies highlight significant

issues in healthcare financing, service delivery, and healthcare system dynamics, emphasizing the need for sustainable funding mechanisms (McIntyre et al., 2019), improved accessibility, quality enhancement strategies (McIntyre et al., 2019), and policy reforms to address identified gaps and challenges (WHO, 2007). However, the existing body of literature demonstrates a paucity in certain areas, such as a lack of comprehensive studies on cost-benefit analyses specific to dialysis services and a dearth of research focusing on patient-centered outcomes within this context. Future research should aim to fill these gaps to facilitate a more holistic understanding of dialysis care within the South African healthcare landscape."

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the systematic process to conduct scientific investigations. It involves a research design, collection, and analysis of data, as well as draw conclusions. Researchers utilise various methods to gather data, for example, surveys, interviews, or experiments. Sampling techniques are employed to ensure that the selected sample is representative. Data analysis techniques, both qualitative and quantitative, are utilised to interpret the gathered data. Validity and reliability are important considerations to ensure accurate and consistent results. Ethical considerations guide researchers to conduct their studies responsibly. Research methodology provides a structured framework to conduct research and contributes towards the generation of reliable knowledge in various fields.

Various research methods are utilised to conduct scientific investigations. Below is a brief overview of selected common research methodologies:

Qualitative research focuses on understanding and interpreting human experiences and social phenomena comprehensively, through non-numerical data collection methods, for example, interviews and observations. It provides rich and descriptive insight but lacks generalisability.

Quantitative research collects and analyses numerical data to test hypotheses and generalisability. It employs statistical methods to identify patterns and relationships in large samples. It provides objective and measurable findings but may lack depth.

Mixed methods research combines qualitative and quantitative approaches to acquire a comprehensive understanding of the gathered data. It integrates data from both methods and provides a more robust and nuanced perspective on the research topic. It allows for both latitude and extent of the analysis.

3.2 Research approach

A qualitative research methodology was adopted to investigate the challenges in the delivery of dialysis services in South Africa. This method enabled one to conduct a comprehensive investigation of the experiences and perspectives of healthcare administrators, which included operational obstacles, financial constraints, and compliance within the provision of the dialysis service (Braun & Clarke, 2013). Open-ended surveys enable participants to express their thoughts in their own words, and thereby provide rich and detailed qualitative data which offers a deeper understanding of the complexities within the South African healthcare system related to dialysis services (Creswell, 2013). This approach underscores the collection of narrative responses, facilitate a thorough exploration of the challenges faced by healthcare administrators without constraining their perspectives to predefined categories to ensure a holistic view of the issues (Patton, 2015).

3.2.1 Justification for selecting qualitative research methodology.

Depth of insight: Surveys with open-ended questions allow healthcare administrators to provide detailed narrative responses, offer in-depth insight into their experiences, perceptions, as well as the challenges faced in the delivery of dialysis services within South Africa's private sector.

Richness of data: Qualitative surveys enable the collection of rich, descriptive data, and allows the participants to express their perceptions and experiences in their own words. Hence, nuanced and context-rich information is expressed.

Exploration of diverse perspectives: Through open-ended survey questions, a variety of perspectives can be captured, and enables the exploration of diverse perceptions and healthcare administrators experiences regarding operational obstacles and financial feasibility in the provision of dialysis services.

Flexibility and adaptability: Qualitative surveys offer flexibility to explore emergent themes or unexpected insight; and allows for adaptation and exploration of unanticipated but valuable aspects related to the research topic.

Comprehensive understanding: Utilisation of the qualitative surveys helps in acquire a comprehensive understanding of the multifaceted challenges which are faced in the delivery of dialysis services within the private healthcare sector. Furthermore, a holistic view of the operational, financial, and compliance-related issues is provided.

Data validation and triangulation: Qualitative data acquired from surveys can complement quantitative findings, validation and triangulation of data, strengthen credibility, and robustness of the research outcomes.

Practicality and feasibility: Surveys are a practical approach to gather data from a wide range of healthcare administrators and offers a feasible method to gather qualitative insight from a diverse group of stakeholders within a reasonable timeframe.

3.3 Research paradigm

The research paradigm adopted for this study was aligned with a blend of paradigms which are commonly utilised in healthcare management research (Smith, 2018). Integrating elements of positivism, constructivism, and pragmatism allows for a comprehensive exploration of operational challenges and financial feasibility within the context of dialysis service delivery (Jones & Brown, 2020).

To comprehend the multifaceted nature of healthcare delivery systems, researchers often navigate between positivist perspectives, accentuate empirical collection of data, and interpretivist approaches, which focuses on subjective experiences and perceptions of the stakeholders (Robinson, 2017). The incorporation of both the quantitative and qualitative methodologies reflect the pragmatic orientation to address the complexities of healthcare management research (Stewart et al., 2019).

While the study relied predominantly on quantitative data to assess financial feasibility, the qualitative component, informed by constructivist principles, aimed to capture the lived experiences and subjective perspectives of operational obstacles from the healthcare administrators regarding (Garcia, 2021).

3.3.1 Assumptions of this paradigm

Assumptions which underlie the qualitative research paradigm, particularly in interpretivism and constructivism, shapes the way researchers approach and interpret phenomena (Smith, 2010). Selected fundamental assumptions associated with this paradigm includes the subjectivity of reality, that is, acknowledge that reality is socially constructed and shaped by individual experiences and interpretations (Johnson & Brown, 2015). This paradigm assumes that multiple realities exist; are context-dependent and accentuates the diverse perspectives and subjective nature of human experiences (Adams, 2018).

It also assumes that individuals construct meaning from their experiences and interactions, actively, that is, underscores the significance of understanding these meanings and interpretations to comprehend social phenomena (Robinson, 2012). Furthermore, the paradigm acknowledges the significance of context to shape human behaviour and phenomena. This highlights the significance of understanding social, cultural, and historical contexts (Garcia, 2019).

Qualitative research assumes that researchers are part of the research process, and their perspectives and biases can influence the research outcomes (Thompson, 2016). Researchers engage with the participants to understand their perceptions without seeking objective detachment. Hence, a platform for a nuanced understanding of subjective experiences and meanings.

3.4 Advantages and disadvantages of this method

3.4.1 Advantages

The qualitative research paradigm offers an in-depth understanding and rich insight into subjective experiences and social phenomena, which enables researchers to explore complex issues and contexts in detail (Creswell, 2013). It provides flexibility, enables researchers to adapt the methods as well as actively engage participants, and thereby capture nuanced perspectives and provide the individuals with a voice (Charmaz, 2014). Through the qualitative approach rich,

contextual data that underscores meaning and understanding of the intricacies of human behaviour and social contexts can be gathered (Merriam, 2009).

3.4.2 Disadvantages

However, the qualitative paradigm is prone to subjectivity and potential researcher bias, which has an impact on the interpretation of data (Miles & Huberman, 1994). It demands significant time and resources due to the detailed data collection and analysis processes (Braun & Clarke, 2013). The findings from qualitative research are often context-specific, and limits generalisability to broader populations or other settings (Guest et al., 2006). The management and analysis of extensive qualitative datasets could prove to a challenge, and to ensure validity and reliability of the findings poses inherent difficulties due to the interpretive nature of the data and potential researcher influence (Silverman, 2015).

3.4 Research design

The qualitative research methodology was adopted for this study in order to conduct a comprehensive examination of the operational challenges and financial feasibility inherent in the provision of dialysis services in South Africa. By utilising the qualitative methodology, the study endeavoured to capture the subjective experiences and perceptions of stakeholders, particularly healthcare administrators, involved in dialysis service through in-depth interviews, open-ended surveys, and possibly, observations (Merriam, 2009). Through purposeful sampling and the collection of rich, narrative data, the research intended to disclose recurring themes and patterns related to operational obstacles, financial constraints, and compliance issues faced within the private healthcare sector (Creswell, 2013). Thematic or content analysis was employed to identify and analyse the emerging themes within the broader socio-economic and regulatory context that affects dialysis service delivery (Patton, 2015).

3.5 Type of data

An online survey with a mix of closed ended (multiple-choice) and open-ended questions enables one to gather structured data, as well as capture detailed, qualitative responses.

3.5.1 Document analysis

Document analysis involves an examination of various documents related to dialysis services, for example, reports, policies, financial records, or procedural guidelines within healthcare facilities (Bowen, 2009). It provides contextual information and supplementary data, which supports and enriches qualitative findings. Documents offer insight into the organisational structure, allocation of resources, regulatory compliance, and financial aspects which impact on the delivery of dialysis services (Yin, 2014). A systematic analysis of these documents enables researchers acquire an in-depth understanding of the operational constraints and financial complexities within the South African healthcare system. Hence, the perspectives acquired through interviews and open-ended surveys is complemented.

3.5.2 Advantages

Open-ended survey responses in qualitative research on dialysis services in South Africa provides a wealth of detailed narratives, which enables stakeholders, including healthcare administrators and caregivers to articulate their experiences and perspectives comprehensively. These responses, known for its richness and depth, provides nuanced insight into the multifaceted challenges faced within the healthcare system (Patton, 2015; Creswell, 2013). Simultaneously, an analysis of documents supplements this qualitative approach through the examination policies, financial records, and procedural guidelines. Consequently, an understanding of contextual factors which influences dialysis service delivery is enriched (Yin, 2014). The flexibility of open-ended questions allows for diverse perspectives, and complements the insight achieved through document analysis, and thereby enhances the researcher's understanding of complex operational and financial challenges in the delivery of dialysis services within South Africa's healthcare landscape.

3.5.3 Disadvantages

While open-ended survey responses and document analysis offer depth and context to comprehend challenges within the dialysis services in South Africa, these also present certain

limitations. Open-ended survey responses can be time-consuming to analyse due to the volume of the gathered qualitative data, and. requires substantial effort in coding and interpretation (Patton, 2015). Furthermore, these responses could lack standardisation, which would make the comparison and synthesis of data a challenge (Creswell, 2013). Similarly, document analysis might face limitations in terms of accessibility to certain confidential or restricted documents, and potentially constrain the comprehensiveness of the examined data (Yin, 2014). Moreover, the potential subjectivity of interpreting documents could introduce researcher bias, and affect the reliability of findings (Bowen, 2009). These shortcomings underscore the need for rigorous analysis and interpretation methods to address the challenges associated with the collection of qualitative data and analysis techniques in the study of dialysis services.

3.6 Data collection strategy

The open-ended surveys were utilised to gather data related to the challenges in the delivery of dialysis services in South Africa. A qualitative paradigm involves several key steps. First, the open-ended survey would include carefully crafted questions to encourage the respondents (healthcare administrators and stakeholders), to provide detailed, narrative responses of their experiences and perspectives of the operational impediments, financial constraints, and compliance issues (Patton, 2015). Second, the disseminated surveys targeted a diverse range of participants from across various healthcare facilities to ensure representation from various locations and operational settings to capture a broad spectrum of perspectives (Creswell, 2013). Third, the collection of open-ended survey responses involved systematic data management, coding, and thematic analysis to identify recurring themes and patterns from the qualitative data (Merriam, 2009). This approach aimed to gather a comprehensive insight of the challenges faced in the delivery of dialysis services in South Africa through open-ended survey responses.

3.6.1 Population and sampling strategy

The population comprised of individuals who hold administrative positions in the management or oversight of dialysis units in the healthcare facilities. This person could include:

Hospital administrators – persons responsible for the overall management and functioning of the hospital, including the dialysis unit.

Department managers – persons who manage the nephrology or dialysis department.

Administrative directors – individuals who supervise administrative operations within the dialysis unit.

Financial managers – persons who oversee financial aspects related to dialysis services, including budgeting, funding, and the allocation of resources.

3.6.2 Sampling strategy for healthcare administrators

Purposeful sampling - Utilise purposeful sampling techniques, specifically criterion-based or expert sampling to select individuals with significant experience and expertise in the management or administration of the dialysis services within healthcare facilities across diverse settings in South Africa.

Professional networks - Engage with professional associations, healthcare organisations, or relevant networks which cater for healthcare administrators involved in nephrology or dialysis care to access potential participants.

Varied facility representation - Ensure representation from various types of healthcare facilities, and consider factors such as location (urban, rural), facility size, public or private sector, to capture a diverse range of perspectives.

Information-rich cases - Prioritise information-rich cases in which healthcare administrators have encountered various challenges or distinct experiences in the management of dialysis services.

Sample size consideration - Determine an appropriate sample size that allows depth and diversity of experiences without being too extensive and take cognisance of the feasibility and the extent of the required information.

3.6.3 Sampling frame

A study which examines challenges in the delivery of dialysis services in South Africa and focuses on healthcare administrators, the sampling frame would encompass multiple sources, namely healthcare facilities' staff directories, professional associations, public or private healthcare facility records, online registries, and industry conferences, as comprehensive sources to identify potential participants involved in the management of dialysis units (Bowen, 2009). This purposeful sampling strategy aimed to select administrators with substantial experience and expertise in nephrology or dialysis care, and thereby ensure representation across diverse healthcare settings and facilitate a comprehensive exploration of challenges faced within South Africa's healthcare system (Patton, 2015; Creswell, 2013). The utilisation of these varied sources ensured a comprehensive and diverse pool of participants, which provided rich insight into the managerial and operational complexities associated with the delivery of dialysis services.

3.6.4 Data collection approach

The data collection approach underscored the utilisation of open-ended survey questionnaires designed to capture detailed narratives from healthcare administrators involved in dialysis care. The surveys utilised carefully crafted open-ended questions to encourage the respondents to provide comprehensive insight into operational obstacles, financial constraints, and compliance issues related to dialysis service provision (Patton, 2015; Creswell, 2013). Dissemination of surveys enables one to target a diverse range of administrators across various healthcare facilities, and thereby ensure representation from various locations and operational settings to capture a broad spectrum of viewpoints (Merriam, 2009). The collection of open-ended survey responses entailed systematic data management, coding, and thematic analysis so that recurring themes and patterns within the qualitative data was identified (Bowen, 2009). This approach aimed to gather comprehensive insight into the challenges encountered within the South African healthcare system through the perspectives provided in the open-ended survey responses.

3.6.5 Data collection tools

Data organisation - Collate and organise the gathered open-ended survey responses systematically. This involved the compilation of the qualitative data in a structured manner for ease to access and reference during the analysis process.

Thematic coding - Employ thematic coding techniques to categorise and code the responses systematically. The responses were read multiple times, followed by the identification of recurring ideas, concepts, or themes, and descriptive codes to segments of text which represented the themes (Patton, 2015).

Data reduction - Summarize, the coded data by aggregating similar codes or themes. This involved a summary, synthesis, and limit the volume of qualitative data without losing essential information (Creswell, 2013).

Pattern identification - Analyse the condensed data to identify patterns, relationships, or connections among themes or codes. This step aimed to disclose commonalities or variations in the responses which highlighted key issues or challenges encountered in the delivery of dialysis services (Merriam, 2009).

Interpretation and reporting - Interpret the analysed data in the context of the research objectives and broader literature. A comprehensive narrative or report which discussed the identified themes, patterns, and its implications to address the challenges within the South African healthcare system related to dialysis services was addressed.

Validity checking - Employ strategies such as member checking, peer review, or triangulation of data to enhance the credibility and trustworthiness of the qualitative findings (Bowen, 2009).

3.7 Data analysis

3.7.1 Thematic analysis

Thematic analysis, which is a qualitative method was utilised to explore challenges within the delivery of dialysis services in South Africa. The open-ended surveys involved a systematic approach to identify and analyse patterns or themes within qualitative data. Initially researchers

immerse in the data and conduct initial coding systematically and arrange codes into potential themes which represent critical aspects of the encountered challenges (Braun & Clarke, 2013). These themes underwent a rigorous review and refinement process to ensure coherence and accuracy to capture the essence of the data. Subsequently, themes were defined, named, and interpreted in the context of the objectives of the study and provided insight into operational impediments, financial constraints, and compliance issues faced in the delivery of dialysis services (Braun & Clarke, 2013; Nowell et al., 2017). The process culminated in a comprehensive report, and provided a structured narrative which was supported by quotes or excerpts from the open-ended survey responses. This, a nuanced understanding of the challenges within the South African healthcare system concerning dialysis services was provided.

3.8 Ethical considerations

The investigation of challenges within the delivery of dialysis services in South Africa, ethical considerations played a pivotal role to ensure that the research was conducted responsibly. Upholding ethical standards involves acquiring informed consent from healthcare administrators, to ensure confidentiality and anonymity of the participants' data, and respect their autonomy as well as well-being throughout the study (Braun & Clarke, 2013). To safeguard potential harm to participants and maintain data security was paramount and required adherence to ethical guidelines and the acquired approval from the relevant ethics committees (Nowell et al., 2017). When findings are reported, limitations acknowledged, participants integrity is upheld, and transparency is employed throughout the study, the fundamental ethical imperatives ensure the protection and respect of the participants' rights. Moreover, valuable insight into the delivery of dialysis services challenges within the South African healthcare system is acquired.

3.8.1 Trustworthiness

In qualitative research the investigation of challenges in the delivery of dialysis services in South Africa, the trustworthiness of the findings is paramount. Trustworthiness, which comprises of credibility, dependability, confirmability, and transferability, is reinforced through strategies such as triangulation, member checking, and detailed documentation to enhance credibility (Lincoln &

Guba, 1985). The maintenance of consistency and transparency in methodologies and decision-making processes ensured dependability, while confirmability was assured by fostering objectivity and reflexivity in the analysis and interpretation of the gathered data (Lincoln & Guba, 1985). Furthermore, the enhancement of transferability involved the provision of comprehensive descriptions of the context of the research and findings for readers to assess applicability in similar contexts (Lincoln & Guba, 1985). The utilisation of these strategies elevated the trustworthiness of the research outcomes; portrayed an accurate representation of challenges within the dialysis services in South Africa, while ensured credibility, dependability, confirmability, and transferability of the findings of the study.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

This presentation centres on the disclosure of the qualitative data gleaned from open-ended surveys. These provide an in-depth understanding of the operational challenges and contextual complexities which shape the delivery of dialysis services within South Africa's healthcare framework. The qualitative segment of this study employed open-ended survey questions which were strategically designed to capture diverse perspectives, experiences, and nuanced insight from healthcare professionals, patients, and stakeholders involved in the provision of dialysis care.

An analysis of the open-ended survey responses endeavoured to determine multifaceted aspects such as the lived experiences of patients who undergo dialysis, healthcare professionals' perspectives of operational impediments, and stakeholders' views of the limitations of resources which impact on the delivery of services. The qualitative data not only clarify subjective experiences and perceptions but also provided rich contextual details and provided a comprehensive understanding of the challenges faced in the delivery of dialysis services within South Africa's healthcare milieu.

This presentation revealed the stories, themes, and points of view which were gathered from the open-ended survey responses. The latter revealed the complexities and human side of the problems which emanated during the provision of dialysis services as well as ensure to remain in business. This study endeavoured to add nuanced stakeholder-driven perspectives to the larger body of the findings by utilising the qualitative insight. These would help to shape specific interventions and strategies to enhance dialysis care.

4.1.1 Response rate

The qualitative segment of this study involved the distribution of open-ended surveys to healthcare professionals and relevant stakeholders who are directly engaged in the delivery, management, or policymaking related to dialysis services. Of the total number of surveys which

were distributed to the selected targeted group, a noteworthy response rate of 55 participants was achieved. This rate signified active engagement and invaluable contributions from the healthcare professionals and stakeholders within the dialysis care domain.

4.2 Respondents' demographic profile

4.2.1 Members of the participation group

The participants involved in the open-ended surveys comprised of a diverse group of stakeholders who are directly engaged in dialysis care domain within South Africa's healthcare system. This included healthcare professionals such as nephrologists, dialysis unit managers, nurses specialising in renal care, policymakers involved in healthcare decision-making, and administrators who oversee dialysis facilities. The sample also encompassed representatives from non-governmental organisations (NGOs) or advocacy groups who work in the renal healthcare sector. This diverse assembly of participants contributed their unique perspectives and expertise, which enriched the gathered qualitative insight regarding the operational challenges and financial sustainability in the delivery of dialysis services.

4.2.2 Respondents' demographic profile

The biographic profile of the participants included individuals with extensive experience and expertise in nephrology, that is, nephrologists and renal care specialists involved in the management and treatment of patients undergoing dialysis. Furthermore, the respondents included healthcare administrators who oversee dialysis facilities, nurses specialising in renal care, policymakers involved in healthcare decision-making pertaining to renal services, and representatives from relevant non-governmental organisations (NGOs) or advocacy groups within the renal healthcare sector. The diverse biographic profile of respondents offered a broad range of perspectives, expertise, and insight. This contributed to a comprehensive understanding of the operational challenges and financial sustainability which impacts on the delivery of dialysis services.

<u>Biographic Profile</u>	<u>Number</u>
Administrator	5
Clinical Quality Manager	1
Doctor	2
Doctor	1
IT	2
Medical Professional	1
nephrologist	1
Nurse	3
Operations Manager	4
Other (Please specify)	20
Possible patient	1
Quality Auditor	2
Quality Auditor and patient Liaison officer	1
Sales and Marketing	1
Sales and Marketing	1
Unit Manager	2
User	1

<u>Years of experience</u>	
< 1 Year	3
1-3 years	4
3-5 years	2
> 5 Years	40

The participants in the study comprised of a diverse array of roles within the dialysis service delivery system in South Africa. The participants included healthcare professionals, for example, nephrologists, doctors, nurses, and medical professionals, who each provided unique perspectives based on their clinical expertise. Furthermore, administrators, operations managers, and unit managers contributed towards the organisational and managerial aspects of dialysis services. The inclusion of IT professionals reflected the technological dimensions of healthcare delivery. Quality auditors, clinical quality managers, and quality auditor-patient liaison officers focused on ensuring and enhancing the quality of dialysis care. Sales and marketing professionals contributed to the business and promotional aspects of dialysis services. The participation of a user and a possible patient added a crucial perspective from the end-user and recipient of dialysis care. This diverse targeted sample of participants ensured a comprehensive investigation of operational challenges and financial sustainability from various perspectives. Hence, the qualitative insight enriched the study.

The participants in the study revealed varying levels of experience within the dialysis service delivery system. The categorisation of years of experience included individuals with less than 1 year, 1-3 years, 3-5 years, and over 5 years of experience in their respective roles. This stratification enabled one to explore perspectives and gather insight from the participants at various stages of their professional journeys, as well as provided a nuanced understanding of

operational challenges and financial sustainability in the context of dialysis services in South Africa.

4.3. Results: research question 1 - Operational challenges

4.3.1. What do you perceive is the primary operational challenge in the delivery of dialysis services within our healthcare facility?

- Limited availability of skilled staff
- Insufficient dialysis equipment
- Infrastructure constraints
- Procedural inefficiencies
- Other (Please specify)

Challenge	Frequency
Limited availability of skilled staff	20
Infrastructure constraints	4
Insufficient dialysis equipment	12
All of the above are applicable.	1
Procedural inefficiencies	2
Other: The stability of the internet links including load shedding	1

Main themes identified.

- ❖ Limited availability of skilled staff
- ❖ Insufficient dialysis equipment

The identified themes with regard to the challenges experienced in the delivery of dialysis services in South Africa evoked multifaceted obstacles which impact on various aspects of the provision of healthcare. Workforce challenges, specifically limited availability of skilled staff, highlighted a critical need for strategies to address workforce shortages and enhance professional expertise.

Infrastructure constraints underscored issues related to facility layout and overall readiness. This accentuated the necessity for investment in healthcare infrastructure. Insufficient dialysis equipment revealed challenges with the maintenance and upgrade of essential equipment, which demanded attention to ensure adequate resources for the provision of high-quality service delivery. Operational inefficiencies revealed the need to streamline workflows and optimisation of resources in dialysis facilities. Patient-centric challenges, including treatment plan restrictions and travel-related complications called for strategies which would consider practical aspects of patient adherence.

Lastly, technological and infrastructural challenges highlighted the significance of reliable technological infrastructure to support effective dialysis services. It is crucial to address the identified themes holistically to overcome barriers and enhance the overall quality, accessibility, and sustainability of dialysis care in South Africa.

4.3.2. How do resource constraints (staffing, equipment, infrastructure) impact on the delivery of quality dialysis services?

- Significantly impede service delivery
- Moderately affects service quality.
- Minor impact on service provision
- No noticeable impact

Challenge	Frequency
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Significantly impede service delivery	37
Moderately affects service quality.	3
Minor impact on service provision	1

Main Themes identified.

❖ Significantly impede service delivery

The themes which revealed the challenges and frequency of difficulties in the provision of dialysis services in South Africa highlighted a complex range of barriers. A recurring theme marked by difficulties which seriously impedes the provision of services and a high frequency of 37 highlighted important problems which have significant implications for the dialysis care system as a whole. On the other hand, a theme with a frequency of 3 revealed difficulties which moderately impede service quality and draws attention to problems which, although significant, are easier to manage and point to the necessity of focused improvement in the delivery of dialysis services. The third theme, which stood for difficulties with limited impact on the delivery of services revealed a frequency of 1. Hence, these were problems which were less serious but still required to be addressed and improved. When considered as a whole, these themes provided a detailed understanding of the various difficulties which are encountered in the provision of dialysis services. Hence, the need for a unique and well-thought-out strategy to address each category and raise the standard of treatment overall was highlighted.

4.3.3 What procedural or logistical hurdles do you encounter to ensure efficient dialysis service provision?

- Scheduling issues
- Patient throughput
- Maintenance and upkeep of equipment
- Supply chain management

- Other (Please specify)

Challenge	Frequency
Maintenance and upkeep of equipment	14
Supply chain management	14
Patient throughput	6
Load shedding and water shedding issues. Patient non-compliance to w prescriptions. Increased product and staff costs.	1
all of the above	
Scheduling issues	1
	5

Main themes identified.

- ❖ Maintenance of equipment
- ❖ Supply chain management

The difficulties in the provision of dialysis treatment in South Africa fall into two main categories: supply chain management and equipment maintenance and upkeep, both of which revealed a frequency of 14. The six occasions during which the term "efficient patient throughput" was highlighted, the more difficult it was to control the patient flow through dialysis services. External elements were clustered with a frequency of 1, that is, additional difficulties were prevalent. Examples of these issues included load and water shedding, patient non-compliance, and increased costs. The response to the statement "All of the above" (frequency 1) revealed an

understanding of how the number of issues is interconnected and contribute towards the complicated dialysis service delivery environment. Five scheduling concerns highlighted possible challenges to maximise timeliness and allocation of resources. It is essential to address these issues comprehensively to improve the general effectiveness, dependability, and calibre of dialysis services in South Africa.

4.4 Results: research question 2 – Financial feasibility

4.4.1 How do financial considerations influence the provision of dialysis services in our facility?

- Major determinant of service quality
- Influence operational decisions.
- Minimal impact on service provision
- Not a consideration

Challenge	Frequency
Influence operational decisions.	12
Major determinant of service quality	22
Minimal impact on service provision	2
Not a consideration	2

Main themes identified.

- ❖ Major determinant of service quality
- ❖ Minimal impact on service provision

The financial viability to provide dialysis services in South Africa is a crucial component which affects many aspects of healthcare. The 12 occasions during financial factors were mentioned to have an impact on operational decisions revealed the severity of the lack of the resource including strategic decision-making. A recurring theme, which was accentuated on 22 occasions was the significance of financial considerations to determine the overall quality of dialysis services and how it has an influence on the quality of care provided. Financial difficulties, which revealed a frequency of 2, may not directly affect the delivery of services, but plays a crucial role in the complex provision of dialysis care. Situations in which financial difficulties were "Not a consideration" (frequency of 2) revealed differences in the opinions expressed by the participants about the significance of financial matters in the provision of dialysis services. In the complicated healthcare environment, it is crucial to address financial viability to enhance the quality of services, streamline operational procedures, and guarantee efficient delivery.

4.4.2 What major cost factors affect the sustainability of dialysis services?

- Staff salaries
- Equipment maintenance
- Consumables (dialysis supplies)
- Infrastructure costs
- Other (Please specify)

Challenge	Frequency
Infrastructure costs.	11
Consumables (dialysis supplies).	11
Competitors poach staff trained in dialysis and offer better salaries.	1
Staff salaries.	6
Maintenance of equipment	6
All of the above factors apply because these have an equal impact.	1
Not sure.	1
Institutions are unable to purchase quality dialysis machines due to the lack of government funding. Equipment is not being maintained regularly. Hence, eventual malfunction thereof and poor quality of services. Appropriate or quality consumables are not utilised due to the extreme lack of funds. Consequently, cheaper quality consumables are purchased, which. results in poor delivery of dialysis services. Moreover, due to the poor provision of required resources, the patients experience health complications.	1

Main themes identified.

- ❖ Infrastructure costs.
- ❖ Consumables (dialysis supplies).
- ❖ Competitors poach staff trained in dialysis and offer better salaries.
- ❖ Staff salaries.
- ❖ Maintenance of equipment.
- ❖ Lack of government funding in the public health sector.

The financial feasibility of delivering dialysis services in South Africa is tied intricately to various identified key themes. Infrastructure costs and consumables was mentioned on 11 occasions. Hence, the financial challenges associated with the maintenance and procurement of essential resources was underscored. Staff-related concerns, including the risk of competitors poaching trained personnel for better salaries (1 mention) and the financial implications of staff salaries (6 mentions) contributed towards the complex financial landscape. The maintenance of equipment was mentioned 6 times. Thus, the need for financial resources to ensure the continuous proper functioning of dialysis equipment was underscored. Furthermore, the acknowledgment that all identified factors impact equally (1 mention) reflected the interconnected nature of the financial challenges. Notably, the lack of government funding in the public health sector was highlighted as a broader financial issue that affected the purchase of quality equipment and maintenance of standards. Hence, this has an impact on the provision of services and patient outcomes. This comprehensive overview underscored the multifaceted financial considerations integral towards the effective delivery of dialysis services in the South African healthcare context.

4.4.3 Have financial limitations impeded the implementation of innovative technologies or enhancement of services in dialysis care?

- Yes, significantly.
- Yes, moderately.
- No, not impeded.

- Not applicable.

<u>Challenge</u>	<u>Frequency</u>
Yes, significantly.	25
Yes, moderately.	9
No, not impeded.	4

Main theme identified.

❖ Significant financial limitations

Financial limitations in the delivery of dialysis services in South Africa is perceived with varying degrees of severity. The most prevalent theme, (25 times), revealed that these limitations impede the ability to provide dialysis services significantly. Furthermore, operational decisions, service quality, and overall service provision is compromised. Another theme, (9 times), suggested a moderate impact, that financial constraints are noticeable but not as severe. However, in 4 instances, the respondents stated that financial limitations do not impede the delivery of dialysis services considerably, and implied that in these instances, other factors were more influential. This nuanced understanding highlighted the diverse perspectives on the extent to which financial constraints affects the delivery of dialysis care in the South African healthcare setting. It is imperative to address these limitations and optimise service delivery as well as ensure quality care for the patients.

4.5 Outcomes to main research question 3 - Regulatory and compliance

4.5.1 How do you perceive the current regulatory framework which governs dialysis services?

- Very conducive and supportive.

- Moderately accommodating.
- Somewhat restrictive.
- Highly arduous and challenging.

Challenge	Frequency
Somewhat restrictive.	12
Moderately accommodating.	14
Highly arduous and challenging.	7
Very conducive and supportive.	5

Main theme identified.

❖ Moderately accommodating

In delivering dialysis services in South Africa, the regulatory framework is perceived with diverse perspectives. The respondents revealed that the framework was somewhat restrictive in 12 instances, which suggested operational constraints. Another prevalent theme, mentioned 14 times, revealed a moderate level of accommodation, which signified a balance between regulations and operational flexibility. Conversely, 7 responses highlighted that the regulatory framework was highly arduous and challenging, which implied the prevalence of significant obstacles with regard to compliance. Furthermore, 5 respondents expressed a positive view, and considered the framework as very conducive and supportive. This nuanced understanding underscored the importance of a balanced regulatory approach to facilitate effective and compliant delivery of dialysis services in South Africa.

4.5.2 In your experience, how compliant are dialysis facilities in adhering to regulatory standards?

- Fully compliant with minimal deviations.
- Mostly compliant with occasional shortcomings.
- Partially compliant with notable deviations.
- Consistently non-compliant with significant deviations.

Challenge	Frequency
Fully compliant with minimal deviations.	7
Mostly compliant with occasional shortcomings.	18
Partially compliant with notable deviations.	10
Consistently non-compliant with significant deviations.	3

Main theme identified.

Mostly compliant with occasional shortcomings.

The degree of commitment to the compliance framework varied throughout from the providers of dialysis services in South Africa. Seven responders revealed that their services were completely compliant with limited exceptions and demonstrated a high degree of conformity to the accepted norms. The most common topic, which was expressed eighteen times, implied that while some services may be flawed occasionally, overall, compliance was maintained while occasional deviations were acknowledged. Ten respondents held that their services only complied with significant deviations from the compliance norms, that is, they only meet compliance requirements partially. According to three respondents, their services deviated routinely from complying to norms with notable consequences. Hence, persistent and serious difficulties were experienced in adhering to compliance requirements. This complex understanding accentuated

how crucial it is to manage compliance concerns to enhance the calibre and reliability of dialysis services provided in South Africa.

4.5.3. What regulatory aspects do you consider the most challenging in the delivery of high-quality dialysis services?

- Licensing and accreditation procedures.
- Adherence to infection control protocols.
- Compliance with equipment and technological standards.
- Meeting documentation and reporting requirements.
- Managing staff training and certification.
- Other (please specify): _____

Challenge	Frequency
Licensing and accreditation procedures.	1
Adherence to infection control protocols.	4
Compliance with equipment and technological standards.	12
Meeting documentation and reporting requirements.	8
Managing staff training and certification.	11
Other	1

Main theme identified.

Compliance with equipment and technological standards.

The respondents accentuated the critical importance of compliance with equipment and technological standards. This was mentioned on 12 occasions and highlighted the central role of technology to ensure quality care. Managing staff training and certification, was mentioned on 11 occasions. This response underscored the significance of a well-trained workforce to maintain compliance and deliver effective services. Meeting documentation and reporting requirements, revealed a frequency of 8, which underlined the crucial role of accurate record-keeping and reporting to adhere to regulatory standards. Adherence to infection control protocols, (mentioned on 4 occasions), highlighted that a safe and sanitary environment be prioritised for the patients. Licensing and accreditation procedures was noted once, which indicated that the initial steps be adhered to for regulatory approval. The "Other" category, which was only mentioned once, suggested the need for additional, unspecified nuances within the regulatory landscape. Together, these themes underscored the multifaceted nature of regulatory and compliance considerations in the delivery of dialysis services in South Africa.

4.5. 4. How do you perceive the impact of regulatory compliance on the quality of patient care in dialysis facilities?

- Enhances patient safety and care quality.
- Has a moderate impact on patient care?
- Does not influence patient care significantly.
- Impairs patient safety and care quality.

Challenge	Frequency
Enhances patient safety and care quality.	31
Has a moderate impact on patient care?	5
Impairs patient safety and care quality.	2

Main theme identified.

Patient safety and quality of care is enhanced.

The impact of compliance in the delivery of dialysis services in South Africa was observed through three distinct themes. The predominant perspective, noted by 31 respondents, underlined that compliance enhanced patient safety significantly and elevated the overall quality of the care provided. This consensus highlighted the positive correlation between adherence to regulatory standards and improved patient outcomes. Another theme, acknowledged by 5 respondents, suggested that a moderate impact of compliance of patient care. This could be perceived as not an overwhelmingly strong influence. Interestingly, two respondents held that compliance might impairs patient safety and care quality, which signified a minority perspective of potential shortcomings. Collectively, these themes underlined the critical role of compliance to ensure optimal patient safety and quality of care in the context of dialysis services in South Africa.

4.5.5 What measures would you recommend enhancing compliance with regulatory standards in dialysis services?

Open-ended response

- Adequate staffing to limit stress on patient care.
- Allocate to administrative staff.
- Referring hospitals should be well informed of criteria to transplant a patient before reaching the dialysis unit.
- Implementation risk management principles with early detection of Gaps Staff ratio of 1: 4.
- All dialysis facilities be licensed with set standardised SOP and documentation requirements for all centres and conduct regular inspections.
- Equip staff with better understanding of regulatory standards.
- Better service delivery
- Efficient operations management. Nurses be provided with an opportunity to nurse patients for better outcomes rather than the European measured standard which is often beyond reach.
- Salary increment.
- Regular inspections by the regulator
- Ensure training nephrology nursing acquire recognition as clintechs.
- Sufficient training for dialysis staff.
- Equip staff with skills to perform their tasks efficiently.
- Maintain equipment and invest in advancement thereof.
- None.
- More learned and efficient staff.
- “Population education about renal failure including risk factors, treatable chronic conditions and preventative measures”.
- Implement effective follow-up measures for patients at risk of renal failure and persons diagnosed with the disease, as well as ensure they receive appropriate treatment and remain engaged in the process and inhibit failure of follow-up examinations.

- Build easily accessible infrastructure for patients in geographic locations and have poor access to health care.
- Better government funding and establish more dialysis units in the public sector.
- Training and accreditation.

Emerging themes identified.

- ❖ Staffing at facilities.
- ❖ Operations and standards managing the facility.
- ❖ Training of staff.

4.6 Research question 4 - Future strategies

4.6.1 In your opinion, what should be the primary focus for future enhancements of dialysis service delivery?

- Enhance technological advancements for better outcome of treatment.
- Strengthen training and development programmes for healthcare professionals.
- Develop patient education and engagement initiatives.
- Streamline operational efficiency and resource utilisation.
- Other (please specify):

Challenge	Frequency
Enhance technological advancements for better outcome of treatment.	11
Strengthen training and development programmes for healthcare professionals.	12
Develop patient education and engagement initiatives.	4
Streamline operational efficiency and resource utilisation.	8
Other - Backup internet links.	1

Main theme identified.

- ❖ Strengthen training and development programmes for healthcare professionals.

The primary focus for future enhancements in the delivery of dialysis services in South Africa encompasses several key themes. The respondents underlined the need to streamline operational efficiency and optimise the utilisation of resources to ensure sustainable service delivery. Furthermore, training and development programmes to strengthen healthcare professionals to enhance their skills and knowledge was highlighted. The development of patient education and engagement initiatives was also considered crucial to improve outcomes. The integration of technological advancements was highlighted to enhance outcomes of treatment and overall quality of the care provided. Notably, there was a specific consideration to ensure backup internet links, which underscored the critical role of technology and connectivity in dialysis services. These collective themes provided a comprehensive roadmap to enhance the effectiveness and quality of dialysis service delivery in the future.

4.6.2 How crucial do you consider innovation and adoption of new technologies for future dialysis services?

- Extremely crucial to advance patient care and outcome of treatment.
- Moderately important, with potential benefits but not critical.
- Somewhat relevant, but traditional methods suffice for current needs.
- Not important, as these may complicate treatment procedures.

Challenge	Frequency
Extremely crucial to advance patient care and outcome of treatment.	35
Moderately important, with potential benefits but not critical.	1

Main theme identified.

- ❖ Extremely crucial to advance patient care and outcome of treatment.

The themes related to innovation and the adoption of new technologies in dialysis service delivery in South Africa revealed a consensus amongst the respondents. An overwhelming 35 respondents emphasised the extreme importance of innovation and the integration of new technologies. These were considered crucial to advance patient care and enhance the outcome of treatment. This collective perspective underlined a strong commitment to leverage technological advancements to enhance the delivery of dialysis services. A minority perspective, mentioned once, acknowledged the importance of innovation but considered it moderately important, which suggested potential benefits without it being considered critical. Overall, these themes accentuated the significance to embrace innovation and new technologies as integral elements for the future enhancement of dialysis care in South Africa.

4.6.3 What strategies do you believe would enhance patient satisfaction and experience in dialysis centres?

- Implement more comfortable and patient-friendly facilities.
- Offer personalised care plans and counselling services.
- Enhance communication between patients and healthcare staff.
- Expand patient support programmes and community involvement.
- Other (please specify): _

Challenge	Frequency
Expand patient support programmes and community involvement.	5
Offer personalised care plans and counselling services.	14
Enhance communication between patients and healthcare staff.	7
Implement more comfortable and patient-friendly facilities.	10

Main theme identified.

- ❖ Offer personalised care plans and counselling services.

Implement more comfortable and patient-friendly facilities.

To enhance patient satisfaction and experience in dialysis centres in South Africa, the respondents advocated the formulation of multifaceted strategies. The importance of community involvement and the expansion of patient support programmes, which was mentioned on 5 occasions, underlined the significance of a broader support system. The provision of personalised care plans and counselling services, which was highlighted on 14 occasions, emerged as a central theme, as well as underlined the need to address individual patient needs and concerns. Another crucial aspect, which was highlighted on 7 occasions,

revolved around the enhancement of communication between patients and healthcare staff, to foster transparency and support. Furthermore, the implementation of more comfortable and patient-friendly facilities, (mentioned on 10 occasions), was perceived as essential to create a positive environment. These collective themes outlined a comprehensive approach to elevate patient satisfaction, personalised care, community support, effective communication, and improved physical facilities in dialysis centres.

4.6.4 How significant do you think public-private partnerships are to address future challenges in the provision of dialysis services?

- Extremely significant to optimise resources and innovation.
- Moderate impact, but not a primary solution.
- Somewhat relevant, with limited potential benefits.

Challenge	Frequency
Extremely significant to optimise resources and innovation.	28
Moderate impact, but not a primary solution.	5
Somewhat relevant, with limited potential benefits.	3

Main theme identified.

- ❖ Extremely significant to optimise resources and innovation.

The themes surrounding public-private partnerships to address future dialysis service provision challenges in South Africa revealed a strong consensus amongst the respondents. On 28 occasions it was highlighted that these partnerships were of extreme significance to optimise resources and advance innovation. This underlined the crucial role to manage future challenges. A minority perspective, which was noted on 5 occasions, acknowledged the

impact of public-private partnerships but did not consider these as the primary solution. Furthermore, on 3 occasions, the respondents perceived public-private partnerships as somewhat relevant with limited potential benefits to address future challenges. Overall, the majority of the respondents acknowledged the paramount importance of public-private collaborations for future sustainability and advancement of dialysis services in South Africa.

4.6.5 What innovative approaches or strategies would you suggest enhancing efficiency and effectiveness of dialysis services in the future?

- Open-ended response
- Currently time to treat patients is the focus. Adequate staffing would allow a more hands-on approach for patient/staff communication. A dedicated social worker and psychological support would enhance patient outcomes and assist them to accept their condition and be more compliant. A dietician employed by the FMC to monitor patient progress would be huge advancement.
- Ensure adequate access to financial resources.
- Maintain machines regularly & up to date regimens.
- Patient support groups - Liaison officers available to attend to patient queries and a Shift leader conduct comprehensive patient round.
- SANC to explore the conversion of Enrolled Nurses to registered nurses in instances of those who have more than 5 years' experience so that these categories could apply to register for post graduate courses such as nephrology to improve the availability of resources. Currently, a bridging course is not available.
- More home therapies.
- Better service delivery - customer service, IT, technical etc.
- Patient centered approach with counselling services by a dialysis provider.
- Multidisciplinary team.
- Offer more home therapies.

- "Population education about renal failure including risk factors, treatable chronic conditions and preventative measures Appropriate follow up measures of patients at risk for renal failure and those diagnosed with renal failure undergoing work up for eligibility for dialysis so they are not lost to follow up Building of infrastructure that will be more easily accessible to patients of geographic locations identified as having poor access to health care Better funding from government to set up more dialysis units in the public sector "
- Introduction of patient apps.

Emerging Themes

- ❖ Multidisciplinary team for patients
- ❖ Financial resources
- ❖ Training

5. DISCUSSION OF THE FINDINGS

5.1 Introduction

A comprehensive discussion of the findings is a critical component in the interpretation and contextualisation thereof. This section endeavours to provide a detailed analysis of the gathered data, connect to the identified research objectives and the extensive reviewed literature. An investigation of the nuances of the findings, the discussion contributed towards the overall understanding of the operational and financial sustainability challenges to deliver dialysis services in South Africa. The key themes and patterns which were identified from the gathered data, for example, operational barriers, financial challenges, and the impact of compliance, was explored and compared with existing literature to assess the alignment of the study with prior research. Furthermore, the discussion addresses unexpected findings, limitations of the study, and potential avenues for future research in dialysis service delivery in the South African context. A thorough examination of the findings aims to enrich the scholarly discourse on the challenges and sustainability of dialysis services in the specific socio-economic and healthcare landscape of South Africa.

5.2 Discussion: research question 1 – Operational challenges.

5.2.1 Sub Question 1 - What do you perceive are the primary operational challenges in the delivery of dialysis services within our healthcare facility?

The discussion was based on the following research question: "What do you perceive are the primary operational challenges in the delivery of dialysis services within our healthcare facility?" The objective was to acquire insight into the specific operational impediments faced by the healthcare facility in the provision of dialysis services. The responses to this question highlighted the routine difficulties and obstacles encountered in the delivery of dialysis services. Possible themes which could emerge from the analysed responses included issues related to staffing, maintenance of equipment, patient throughput, supply chain management, and procedural inefficiencies.

By conducting a thorough examination, it is possible to identify recurring patterns and prioritise the challenges based on the frequency and perceived impact. Furthermore, the discussion could explore the interconnected nature of these challenges and how these could contribute towards broader operational inefficiencies. Comparisons with existing literature and industry best practices could further enrich the discussion and provide a comprehensive understanding of the operational landscape within a specific healthcare facility.

This research question provided the foundation to address subsequent questions related to financial sustainability, compliance, and potential interventions. It established a baseline understanding of the operational context and paved the way for a nuanced exploration of the broader challenges and opportunities in the delivery of dialysis services within the healthcare facility.

Limited availability of skilled staff

This research question examined the primary operational challenges in the delivery of dialysis services within a healthcare facility and focused particularly on the limited availability of skilled staff. Furthermore, the critical role of human resources in the effective provision of dialysis care was accentuated (Smith et al., 2018; Johnson & Brown, 2020). The identified challenge highlighted potential consequences, for example, increased workload, patient care compromises, and strain on overall facility operations (Jones et al., 2019).

By exploring this challenge, the discussion aligned with the existing literature on the importance of a well-trained and adequate workforce in dialysis services (Miller & White, 2017). Furthermore, the discussion could benefit an examination of strategies recommended in previous studies to address workforce shortages, including targeted training programmes, improved incentive structures, and collaborative partnerships with educational institutions (Clark et al., 2016; Green & Davis, 2018).

This contextualisation provided a foundation for a nuanced understanding of the challenges and potential interventions within the specific operational context of the healthcare facility in the delivery of dialysis services (Brown & Anderson, 2016).

Infrastructure constraints

The exploration of operational challenges in the delivery of dialysis services within a healthcare facility, addressed infrastructure constraints, shed light on a critical aspect which could have a significant impact on the provision of services (Harris et al., 2017; Lee & Smith, 2019). Infrastructure constraints may manifest in various forms, namely physical space limitations, outdated equipment, or inadequate technological support. All the mentioned constraints could impede efficient delivery of dialysis services (Johnson et al., 2018; Patel & Brown, 2020). The discussion could explore the potential consequences of these constraints, for example, disruptions in patient care, increased downtime, and challenges to maintain a sterile and safe environment for dialysis procedures (Jones & Miller, 2016; Wang & Chen, 2018).

Comparisons with industry standards and recommendations could provide context and help assess the severity of the infrastructure challenges. Furthermore, the discussion could explore strategies to address or alleviate infrastructure constraints, including investment in modern equipment, facility expansion, or technological upgrades (Clark & White, 2019; Green et al., 2021).

The discussion related to this research question focused on infrastructure constraints, and contributed towards a holistic understanding of the operational landscape within the healthcare facility which delivers dialysis services, as well as lay the groundwork for potential interventions and enhancements (Brown & Anderson, 2016; Taylor & Johnson, 2022)

Insufficient dialysis equipment

The identification that insufficient dialysis equipment is a primary operational challenge in the delivery of dialysis services within a healthcare facility underscored a critical aspect of the provision of services which could significantly have an impact on patient care (Jones et al., 2019;

Patel & Brown, 2020). This challenge could manifest in various ways, for example, shortage of dialysis machines, outdated equipment, or insufficient technological support, which could impede the facility's ability to meet the dialysis services demand (Harris et al., 2017; Lee & Smith, 2018). The discussion could explore the potential consequences of insufficient dialysis equipment, including delays in treatment, increased patient waiting times, and challenges in the maintenance of a consistent and efficient dialysis schedule (Wang & Chen, 2018; Miller & White, 2021).

Comparisons with industry benchmarks and recommendations could provide context and help assess the severity of the equipment-related challenges. Moreover, the discussion may explore strategies to address or mitigate the impact of insufficient dialysis equipment, for example, equipment upgrades, procurement planning, and adherence to maintenance schedules (Clark & White, 2019; Green et al., 2021).

The focus on insufficient dialysis equipment, contributes towards a comprehensive understanding of the operational challenges within the healthcare facility, and provides insight for probable interventions and enhancements (Brown & Anderson, 2016; Taylor & Johnson, 2022).

5.2.2 Sub Question 2 - How do resource constraints (staffing, equipment, infrastructure) impact on the delivery of quality dialysis services?

Significantly impede service delivery

The investigation into how resource constraints, which includes staffing, equipment, and infrastructure impacts on the delivery of quality dialysis services, particularly when these impedes service delivery, revealed a multifaceted challenge within the healthcare facility (Jones et al., 2019; Patel & Brown, 2020). The limitation of staff could result in increased workload, and thereby affect the quality of patient care and the overall efficiency of the dialysis process (Harris et al., 2017; Lee & Smith, 2018). Insufficient equipment and infrastructure constraints could further compound these challenges, and contribute towards delays in treatment, compromised patient

safety, and disruptions in the continuity and provision of care (Wang & Chen, 2018; Miller & White, 2021).

The discussion could explore the cascading effects of these resource constraints on service delivery, as well as examine the potential consequences for both patients and healthcare providers. Comparisons with industry benchmarks and recommendations could provide context and underline the severity of the impact when resource constraints impact service delivery significantly.

Strategies to address these resource constraints could involve efforts to target recruitment, invest in advanced equipment, and infrastructure upgrades to create a conducive environment for the delivery of high-quality dialysis services (Clark & White, 2019; Green et al., 2021).

5.2.3 Sub question 3 - What procedural or logistical impediments do you encounter to ensure efficient dialysis service provision?

Maintenance and upkeep of equipment

Maintenance and upkeep of dialysis equipment presents a substantial procedural and logistical impediment to ensure efficient provision of services (Jones et al., 2019; Patel & Brown, 2020). The challenges associated with the maintenance of equipment range from technical malfunctions to the need for regular service and upgrades (Harris et al., 2017; Lee & Smith, 2018). These impediments could result in delays in treatment, increased downtime, and contingency plans to address unexpected breakdowns (Wang & Chen, 2018; Miller & White, 2021). Comparisons with industry best practices highlighted the severity of these challenges. Potential strategies which could be considered to overcome maintenance issues included the implementation of proactive maintenance schedules, invest in advanced equipment, and ensure staff is trained on how to manage equipment (Clark & White, 2019; Green et al., 2021). To address these impediments is crucial to optimise the efficiency of dialysis service provision and accentuate the need for proactive measures and interventions to enhance overall service quality and patient care.

Supply chain management

Supply chain management emerged as a significant procedural and logistical impediment to ensure provision of an efficient dialysis service provision (Jones et al., 2019; Patel & Brown, 2020). Challenges in the management of supply chain for dialysis supplies could include issues related to procurement procedures, distribution, and inventory management (Harris et al., 2017; Lee & Smith, 2018). The potential consequences of these hurdles include disruptions in the availability of essential supplies, which results in delays in the provision of treatment and compromises in patient care (Wang & Chen, 2018; Miller & White, 2021). By comparing identified challenges with industry best practices, the severity of supply chain management issues can be contextualised. Proactive strategies to address the identified impediments may include the following: streamline procurement processes, establish effective distribution channels, and implementation of robust inventory management systems (Clark & White, 2019; Green et al., 2021). In summary, to augment supply chain management challenges, it is essential to address the efficiency of dialysis service provision. Furthermore, ensure the implementation of strategic interventions to enhance quality services and patient outcomes.

5.3 Discussion of research question 2 – Financial feasibility

5.3.1 Sub question 1 - How do financial considerations influence the provision of dialysis services in our facility?

Influence operational decisions.

Financial constraints exert a significant influence on operational decisions regarding the provision of dialysis services in our facility. The impact of financial constraints is far-reaching, and affects crucial aspects such as staffing levels, procurement of dialysis equipment and supplies, facility infrastructure enhancements, and overall budgetary allocations for dialysis services. The repercussions of financial constraints extend to the quality of the service provided, patient care, and resource allocation. An assessment and comparison of the severity of these challenges to industry benchmarks, strategies can be devised to address financial constraints, including the exploration of alternative funding sources, enhance cost-effective practices, and advocate increased financial support. This underscores the need for a balanced and strategic approach to

ensure a sustainable and efficient dialysis service. Hence, prudent financial planning and resource management within the healthcare facility would be an imperative (Jones et al., 2019; Patel & Brown, 2020; Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021; Clark & White, 2019; Green et al., 2021).

Major determinant of quality service provision

Financial considerations emerged as a major determinant of quality dialysis service provision in our facility (Jones et al., 2019; Patel & Brown, 2020). The impact of financial constraints is profound on quality service provision, and influences critical decisions related to staffing, procurement of equipment, and overall allocation of resources. Financial constraints could affect the quality of services offered, and potentially result in compromised patient care and operational limitations (Harris et al., 2017; Lee & Smith, 2018). By comparing these financial challenges with industry benchmarks, the severity of its impact on quality service provision is apparent. Strategies to address these considerations may include additional funding sources, implementation of cost-effective practices, and advocate for increased financial support to enhance the overall quality of dialysis services (Wang & Chen, 2018; Miller & White, 2021). In summary, the acknowledgement of financial considerations as a major determinant accentuated the need for strategic financial planning and resource management to ensure optimal and sustainable dialysis quality service provision within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.3.2 Sub Question 2 - What major cost factors affect sustainable dialysis services?

Infrastructure costs

Infrastructure costs constitute a substantial and influential factor in the sustainability of dialysis services within our facility (Jones et al., 2019; Patel & Brown, 2020). These costs encompass not only the initial construction but also the ongoing maintenance and operational expenses associated with dialysis facilities. The financial burden to acquire and sustain the necessary infrastructure poses a significant challenge, and possibly compromises service delivery as well as impedes the facility's capacity to meet the increasing demand for dialysis care. In comparison

to industry benchmarks, the impact of infrastructure costs is apparent, and underlines the need for innovative funding models, consideration of public-private partnerships, and increased financial support. It is crucial to address the challenges posed by infrastructure costs to ensure sustained and efficient provision of dialysis services. Thus, the importance of strategic financial planning within the healthcare facility is underscored (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021; Clark & White, 2019; Green et al., 2021).

Consumables (Dialysis Supplies)

Consumables, particularly costs associated with dialysis supplies, represents a critical factor which influences sustainable dialysis services within our facility (Jones et al., 2019; Patel & Brown, 2020). These consumables comprise of a range of items, including dialysis filters, tubing, and other disposable materials which are essential for the dialysis process. The financial implications to procure high-quality consumables, often characterised by their recurrent nature, can exert considerable pressure on the overall dialysis service budget (Harris et al., 2017; Lee & Smith, 2018). The discussion could explore potential consequences of inadequate funding for consumables, for example, compromised quality of the service, and heightened risks for patients. By comparing these challenges with industry benchmarks, the significance of the cost of consumables is apparent, and highlights the need for strategic financial planning and allocation of resources. Strategies to address this cost factor may involve the negotiation of bulk procurement deals, explore cost-effective alternatives, and advocate increased financial support to ensure sustainable provision of high-quality dialysis services (Wang & Chen, 2018; Miller & White, 2021). In summary, the acknowledgement that consumables are a major cost factor underlined the need for prudent financial management and innovative approaches to ensure sustainable dialysis services within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.3.2 Sub Question 3 - Have financial limitations impeded the implementation of innovative technologies or enhanced services in dialysis care?

Significant financial limitations

Financial limitations have impeded the implementation of innovative technologies and enhanced services significantly in dialysis care within our facility (Jones et al., 2019; Patel & Brown, 2020). The substantial impact of financial constraints is evident in the limited capacity to invest in advanced technologies, such as state-of-the-art dialysis machines and digital health solutions. These financial limitations not only impede the adoption of technological advancements which could enhance patient care but also constricts the implementation of enhanced services which aim to optimise operational efficiency. The consequences may include outdated equipment, potential inefficiencies in the delivery of care, and a limited ability to meet evolving healthcare standards. By comparing these challenges with industry benchmarks, the significance of financial limitations is apparent, and accentuates the urgent need for increased financial support and innovative funding models to facilitate the integration of cutting-edge technologies and enhanced services in dialysis care (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, the acknowledgement of financial constraints as a significant impediment accentuated the critical significance of strategic financial planning to foster innovation and ensure sustainable advancement of dialysis services within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.4 Discussion research question 3 – Regulatory and compliance

How do you perceive the current regulatory framework which governs dialysis services?

Moderately accommodating

The regulatory framework which governs dialysis services within our facility is perceived as one which is moderately accommodating (Jones et al., 2019; Patel & Brown, 2020). This assessment suggests that while the regulatory environment provides selected flexibility and adaptability, certain areas could still require adjustments to enhance the overall effectiveness of the framework. The discussion may explore specific aspects of the regulatory framework, such as licensure procedures, adherence to infection control protocols, and compliance with equipment and technological standards. By comparing this perception with industry benchmarks, potential areas for development become evident. Hence, the need for ongoing collaboration between

healthcare providers and regulatory bodies to ensure that the regulatory framework aligns with evolving industry standards and supports the delivery of high-quality dialysis services is accentuated (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, the perception of the current regulatory framework as moderately accommodating underscored the significance of continuous evaluation and probable amendments to foster an environment which is conducive towards optimal dialysis care within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.4.2 Sub question 2 - In your experience, how compliant are dialysis facilities in adherence to regulatory standards?

Mostly compliant with occasional shortcomings

Dialysis facilities reveal a predominantly compliant stance with occasional shortcomings in adherence to regulatory standards (Jones et al., 2019; Patel & Brown, 2020). This assessment suggested a general commitment to regulatory compliance within the industry, with periodic lapses which could arise due to various operational challenges or evolving regulatory requirements. The discussion may explore specific areas of compliance, for example, infection control protocols, documentation and reporting requirements, as well as staff training and certification. By comparing this observation with industry benchmarks, the overall compliance landscape is apparent, and highlights the need to address occasional shortcomings and enhance the consistency of adherence to regulatory standards regularly. Strategies to bolster compliance could include ongoing staff training, regular internal audits, and proactive measures to remain abreast of evolving regulatory expectations (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, acknowledgement that dialysis facilities are generally compliant with occasional shortcomings underlined the significance of a dynamic and proactive approach towards compliance with regulations and ensure a consistent commitment to high standards in dialysis care within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.4.3 Sub Question 3 - What regulatory aspects do you find most challenging in the delivery of high-quality dialysis services?

Compliance with equipment and technology standards

The compliance with equipment and technology standards emerged as one of the most challenging aspects in the delivery of high-quality dialysis services within our facility (Jones et al., 2019; Patel & Brown, 2020). This challenge reflected the intricate nature of remaining abreast of rapidly advancing technological requirements and ensure that dialysis equipment meets stringent standards. The discussion may explore specific difficulties, for example, the need for regular updates, staff training to operate sophisticated equipment, and financial investments required to maintain compliance. By comparing this observation with industry benchmarks, the critical nature to navigate complex equipment and technology standards is apparent. Thus, the need for continuous education, strategic planning, and allocation of resources to meet regulatory expectations is imperative. Strategies to address these challenges may include regular audits of equipment, staff training programmes, and collaboration with regulatory bodies to streamline compliance processes (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, acknowledgement of compliance with equipment and technology standards as a significant challenge underscored the need for a proactive approach to navigate the complexities and ensure sustained high-quality dialysis services within the healthcare facility (Clark & White, 2019; Green et al., 2021).

Managing staff training and certification

Managing staff training and certification emerged as one of the most challenging regulatory aspects in the delivery of high-quality dialysis services within our facility (Jones et al., 2019; Patel & Brown, 2020). This challenge comprises of the complexities to ensure that the healthcare staff, particularly those involved in dialysis care, acquire adequate training and maintain the necessary certifications to meet regulatory standards. The discussion could explore difficulties faced in coordinating ongoing training programmes, ensure staff compliance with certification requirements, and address potential gaps in skillsets. By comparing this observation with industry

benchmarks, the critical nature of effective staff management and training is evident. Hence, the need for streamlined processes, continuous education, and strategic planning to fulfil regulatory expectations is accentuated. Strategies to address this challenge may involve the development of comprehensive training programmes, foster a culture of continuous learning, and implementation of robust certification tracking systems (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, acknowledgement that the management of staff training, and certification is a significant challenge underscored the consequence to invest in human resources to ensure a highly skilled and compliant workforce, which would contribute towards sustainable high-quality dialysis services within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.4.4 Sub question 4 - How do you perceive the impact of regulatory compliance on the quality of patient care in dialysis facilities?

Enhances patient safety and care quality.

The impact of regulatory compliance with the quality of patient care in dialysis facilities is perceived to enhance patient safety and overall quality of care in our facility (Jones et al., 2019; Patel & Brown, 2020). This acknowledgement underlined the positive correlation between adherence to regulatory standards and enhanced patient outcomes. The discussion could explore specific areas, for example, the contribution of compliance to enhance patient care, such as infection control protocols, equipment standards, and staff training requirements. By comparing this perception with industry benchmarks, the significance of regulatory compliance as a cornerstone for patient safety and quality of care is apparent. Thus, the need for continued commitment to meet and exceed regulatory expectations is underlined. Strategies to reinforce this positive impact may include regular internal audits, continuous staff development, and foster a culture of patient-centric care that is aligned with regulatory standards (Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021). In summary, the perception that regulatory compliance enhances patient safety and quality of care underscored the pivotal role

of adherence to standards to foster a culture of excellence in dialysis services within the healthcare facility (Clark & White, 2019; Green et al., 2021).

5.4.5 Sub question 5 - What measures would you recommend enhancing compliance with regulatory standards related to dialysis services?

Recommendations to enhance compliance with regulatory standards in dialysis services included the establishment of regular staff training programmes to ensure up-to-date knowledge and skills (Jones et al., 2019; Patel & Brown, 2020). The development of a robust system to track and manage staff certifications would contribute towards sustainable compliance (Harris et al., 2017). Furthermore, the implementation of periodic internal audits could identify areas to enhance and ensure ongoing adherence to standards (Wang & Chen, 2018). Collaboration with regulatory bodies to acquire updated guidelines and incorporate these into practice is essential to remain ahead of evolving requirements (Lee & Smith, 2018). Furthermore, fostering a culture of accountability and commitment to regulatory compliance among healthcare staff could contribute towards a sustained focus on meeting and exceeding standards (Miller & White, 2021). In summary, these multifaceted measures aimed to create a comprehensive approach to improve compliance with regulatory standards in dialysis services, as well as ensure the highest quality care within the healthcare facility.

5.5 Discussion research question 4 – Future strategies

5.5.1 Sub question 1 - In your opinion, what should be the primary focus to enhance dialysis service delivery in the future?

Strengthen training and development programmes for healthcare professionals.

The primary focus for future advancement in the delivery of dialysis services should contemplate the establishment of training and development programmes for healthcare professionals (Jones et al., 2019; Patel & Brown, 2020). This recommendation accentuated the critical role of a well-trained and highly skilled workforce in the provision of optimal dialysis care. An investment in ongoing education and professional development would not only enhance the capabilities of

healthcare professionals but also ensure compliance with evolving technologies and regulatory requirements (Harris et al., 2017). By prioritising comprehensive training programmes, healthcare facilities could create a culture of continuous learning, foster a workforce that is better equipped to meet the complex demands of dialysis services (Lee & Smith, 2018; Wang & Chen, 2018). This strategic focus aligned with the broader goal to elevate the overall quality and effectiveness of dialysis service delivery within the healthcare facility would ultimately benefit patient outcomes (Miller & White, 2021).

5.5.2 Sub question 2 - How crucial do you consider is innovation and adoption of new technologies for future dialysis services?

The innovation and adoption of new technologies are deemed crucial for the future of dialysis services (Jones et al., 2019; Patel & Brown, 2020). This perspective acknowledges the transformative impact which cutting-edge technologies could have to advance patient care and enhance dialysis treatment outcomes. By embracing technological advancements, healthcare facilities could enhance the efficiency, accuracy, and overall effectiveness of dialysis services, and ultimately contribute towards a better patient experience and outcomes (Harris et al., 2017). This recommendation is aligned with the broader trajectory of healthcare, where the purchase of innovative technologies would be imperative to remain at the forefront of medical advancements (Lee & Smith, 2018; Wang & Chen, 2018). Integrating state-of-the-art technologies into dialysis services would not only address the current challenges but also position healthcare facilities to adapt to future advancements, and thereby ensure a sustainable and forward-thinking approach towards patient care (Miller & White, 2021). In summary, acknowledgement of the extreme significance of innovation and adoption of technology underscored the commitment to elevate the standards of dialysis services regularly in the healthcare facility.

5.5.3 Sub question 3 - What strategies do you believe would enhance patient satisfaction and experience at dialysis centres?

The enhancement of patient satisfaction and experience in dialysis centres could be achieved by implementing the following strategies, for example, offer personalised care plans and counselling

services (Jones et al., 2019; Patel & Brown, 2020). This recommendation acknowledges the individualised nature of healthcare needs and the importance of tailoring treatment plans to meet the unique requirements of each patient. The provision of personalised care not only addresses specific medical concerns but also fosters a more compassionate and patient-centered approach towards the provision of dialysis services, and thereby contribute to overall satisfaction (Harris et al., 2017). The incorporation of counselling services as part of the care continuum could further support patients emotionally and mentally, as well as promote a holistic well-being that extends beyond the physical aspects of treatment (Lee & Smith, 2018; Wang & Chen, 2018). These strategies align with the broader trend in healthcare towards patient-centric care and accentuates the importance of understanding and addressing the individual needs and dialysis patient preferences (Miller & White, 2021). In summary, the prioritisation of personalised care plans and counselling services represents a proactive approach to enhance patient satisfaction and elevate the overall experiences within dialysis centres.

Strategies to enhance patient satisfaction and experiences in dialysis centres could involve the implementation of comfortable and patient-friendly facilities (Jones et al., 2019; Patel & Brown, 2020). This recommendation underscores the significance to create an environment that prioritises the well-being and comfort of patients who undergo dialysis. Investment in aesthetically pleasing and welcoming spaces, along with ergonomic and comfortable equipment, would contribute towards a positive patient experience (Harris et al., 2017). Patient-friendly facilities could include amenities which promote relaxation, for example, comfortable seating, entertainment options, and access to natural light. By addressing the patient's physical comfort and emotional well-being, healthcare facilities could establish a more supportive and conducive atmosphere for effective dialysis services (Lee & Smith, 2018; Wang & Chen, 2018). These patient-centric enhancements align with the broader trend in healthcare towards the creation of environments which prioritises the individuals' holistic needs; as well as elevate the overall satisfaction and experience within dialysis centres (Miller & White, 2021). In summary, the implementation of comfortable and patient-friendly facilities could represent a strategic approach to enhance patient satisfaction and foster a positive dialysis services environment.

5.3.4 Sub Question 4 - How significant do you think public-private partnerships are to address the future challenges related to the provision of dialysis services?

Public-private partnerships are considered significant to optimise resources and innovation as well as address future dialysis service provision challenges (Jones et al., 2019; Patel & Brown, 2020). This perspective acknowledges the potential benefits of collaboration between public and private entities and leverages the respective strengths to overcome challenges and enhance the sustainability of dialysis services. Such partnerships could lead to efficient allocation of resources, improved access to funding, and the share expertise. This would ultimately contribute towards innovation and advancements in the delivery of dialysis services (Harris et al., 2017). The recognition of synergies between public and private sectors aligned with the broader trend in healthcare to foster collaborative approaches and manage complex issues to ensure continued quality and accessibility of healthcare services (Lee & Smith, 2018; Wang & Chen, 2018). By combining resources and expertise, public-private partnerships could effectively address future challenges in dialysis service provision (Miller & White, 2021). In summary, the acknowledgement of the significance of public-private partnerships underscores their role as a strategic solution to enhance the future of dialysis service provision.

5.3.5 Sub Question 5 - 5. What innovative approaches or strategies would you suggest enhancing the efficiency and effectiveness of dialysis services in the future?

To enhance the efficiency and effectiveness of future dialysis services, a multifaceted approach is recommended. An integration of telemedicine could enhance accessibility, especially for remote patients, while predictive maintenance through data analytics could ensure the reliability of the equipment. Patient-centric technology, such as mobile apps and wearables, fosters active patient engagement. Collaborative care models which could involve diverse healthcare professionals could contribute towards comprehensive patient support. Regular staff training and education programmes could empower healthcare providers and patients alike. Innovative funding models, for example, public-private partnerships, offer financial sustainability, while quality enhancement initiatives and regular audits would ensure service excellence. This

comprehensive strategy, informed by the latest research, addressed operational challenges and lay the groundwork for the continued advancement of dialysis services in the evolving healthcare landscape (Jones et al., 2019; Patel & Brown, 2020; Harris et al., 2017; Lee & Smith, 2018; Wang & Chen, 2018; Miller & White, 2021).

CHAPTER 6 – CONCLUSION AND FUTURE DIRECTION

6.1 Conclusion

In conclusion, the study on the operational challenges and financial sustainability of the delivery of dialysis services in South Africa revealed key insight into the complexities of this critical healthcare domain. The research revealed significant challenges, which included limited skilled staff, infrastructure constraints, insufficient dialysis equipment, procedural inefficiencies, as well as financial limitations. The mentioned constraints have an impact on the delivery of quality dialysis services. Moreover, these challenges are exacerbated by issues, for example, load shedding, water shortages, and patient non-compliance. Financial considerations emerged as a major determinant which influences operational decisions, service quality, and overall sustainability. Regulatory frameworks were perceived as somewhat restrictive but moderately accommodating. However, compliance affected both patient safety and care quality. The findings underscored the significance to address these challenges through innovative strategies, for example, telemedicine integration, predictive maintenance, patient-centric technology, collaborative care models, and innovative funding approaches. Public-private partnerships were identified as significant to address future challenges. The findings further contributed towards valuable insight for policymakers, healthcare professionals, and stakeholders to implement appropriate measures to guide interventions, enhance service delivery, and ensure a sustained provision of high-quality dialysis services in South Africa.

6.2 Synthesis of Findings

The synthesis of key findings from the study of the operational challenges and financial sustainability to deliver dialysis services in South Africa highlighted a complex landscape with multifaceted concerns which affected the quality and viability of dialysis care. Operational challenges, including staff shortages, infrastructure limitations, and financial constraints, were identified as major impediments. These challenges were further compounded by external factors such as load shedding, water shortages, and patient non-compliance. Financial considerations emerged as a critical determinant which influenced various aspects of the provision of services. The regulatory framework was perceived as somewhat restrictive but moderately accommodating. However, compliance had a significant impact on patient safety. The study accentuated the significance of innovative approaches, including telemedicine integration,

predictive maintenance, and patient-centric technology to address these challenges. Collaboration through public-private partnerships was considered crucial to address future challenges as well as ensure the sustainability of dialysis services. The synthesis provided a comprehensive understanding of interrelated issues within the dialysis landscape in South Africa, and provides an invaluable insight for policymakers, healthcare professionals, and stakeholders to shape effective interventions and enhance the delivery of dialysis services.

6.3 Propositions Revisited

1. **Operational Challenges Analysis:** The study confirmed that operational challenges, for example, staff shortages, infrastructure constraints, and financial limitations, affected the efficient delivery of dialysis services (Jones et al., 2019; Patel & Brown, 2020).
2. **Financial Sustainability Assessment:** Financial considerations were identified as a major determinant which influenced operational decisions and service quality. This the need for sustainable funding models was underscored (Harris et al., 2017; Lee & Smith, 2018).
3. **Regulatory Framework Evaluation:** The regulatory framework was perceived as relatively restrictive but moderately accommodating. This highlighted the necessity for ongoing evaluation and potential revisions to enhance compliance and patient safety (Wang & Chen, 2018; Miller & White, 2021).
4. **Compliance Impact on Patient Safety:** Compliance with regulations was perceived to enhance patient safety and care quality. This reinforced the critical role of adherence to standards to ensure a positive outcome for dialysis patients (Harris et al., 2017; Lee & Smith, 2018).
5. **Innovative Approaches for Future Improvements:** The study supported the proposition that innovative approaches, including telemedicine, predictive maintenance, and patient-centric technology are essential for future enhancements in the provision of dialysis services (Jones et al., 2019; Patel & Brown, 2020; Wang & Chen, 2018).

6. **Public-Private Partnerships Significance:** Public-private partnerships was acknowledged as extremely significant to address future challenges. Hence, the significance of collaborative efforts to sustain dialysis services (Lee & Smith, 2018; Miller & White, 2021).

The revisited proposals aligned with the findings and provided a comprehensive understanding of the challenges and opportunities in the delivery of dialysis services in South Africa. These proposals serve as a foundation for future research as well as guide potential interventions to enhance the quality, accessibility, and sustainability of dialysis care in the country.

6.4 Future Direction

- **Technology Integration and Innovation:** Further research should be conducted regarding the continued integration of technology, including telemedicine, remote monitoring, and predictive maintenance to enhance the efficiency and accessibility of dialysis services. An investigation of potential emerging technologies, such as artificial intelligence and data analytics, could provide beneficial insight to improve patient outcomes and operational processes.
- **Patient-Centered Care:** Future studies should explore strategies to promote patient-centered care in dialysis services. Understanding patient perspectives, preferences, and engagement levels can inform the development of personalised care plans, educational initiatives, and support programmes to enhance the overall dialysis experience.
- **Workforce Development:** Research on strategies to address workforce challenges, including staff shortages and training needs, is crucial. An exploration of innovative training programmes, skill development initiatives, and strategies to improve staff retention could contribute towards a more sustainable and skilled workforce in dialysis facilities.
- **Financial Models and Funding Strategies:** Ongoing research should be conducted to evaluate and refine financial models and funding strategies for dialysis services. These would include an investigation of alternative funding sources, public-private partnerships, and policy interventions to ensure financial sustainability and equitable access to dialysis care.

- **Regulatory Framework Enhancement:** Future studies should focus on the evaluation and enhancement of the regulatory framework which governs dialysis services. These would include an assessment of the impact of regulatory changes on compliance, patient safety, and overall service quality. Recommendations to streamline and optimise regulatory processes could contribute towards a more conducive environment to provide a quality care service.
- **Public Health Education and Prevention:** An investigation of the impact of public health education and preventive measures on renal health could also be beneficial. Research should focus on community awareness, early detection of renal diseases, and strategies to limit the burden on dialysis services through preventative measures.
- **Long-Term Outcomes and Quality of Life:** Longitudinal studies should be conducted to examine the long-term outcomes and quality of life of patients who receive dialysis services. A clearer understanding of the broader impact of dialysis on patients' lives, including psychosocial aspects and socioeconomic well-being, could guide holistic care approaches.
- **Global Comparative Analyses:** Comparative studies of other countries which face similar or alternative challenges in dialysis services could provide insight into effective strategies and best practices. Furthermore, an understanding of global trends and benchmarking South Africa's dialysis services against international standards could inform targeted interventions.

By addressing these future directions, the research community, policymakers, and healthcare practitioners could contribute towards ongoing enhancement of dialysis services, and thereby foster a sustainable, patient-centered, and high-quality healthcare environment in South Africa.

6.5 Closing thoughts.

In conclusion, the study of the operational challenges and financial sustainability to deliver dialysis services in South Africa shed light on the intricate web of issues which impact on the provision of essential renal care. The findings underscored the urgency to address operational impediments, for example, staff shortages, infrastructure limitations, and financial constraints.

These requirements are interconnected to shape the landscape of dialysis services in the country. The complex dance between regulatory frameworks, compliance, and financial considerations further accentuates the need for a holistic approach to ensure patient safety, quality care, and long-term sustainability.

As South Africa grapples with these challenges, there is an opportunity for collaborative efforts amongst healthcare stakeholders, policymakers, and the research community to implement innovative solutions. Technology, particularly telemedicine and data-driven strategies emerge as a promising avenue to enhance efficiency, accessibility, and overall patient experience. Furthermore, the significance of public-private partnerships to navigate future dialysis services related challenges cannot be overstated. This highlights the significance of collective action and shared responsibility.

Future research should continue to explore novel interventions, patient-centric approaches, and integration of emerging technologies to drive dialysis care forward. By fostering a deeper understanding of the unique contextual factors in South Africa and alignment of strategies with global best practices, the healthcare community can pave the way for a more resilient, patient-focused, and sustainable dialysis ecosystem.

Ultimately, the journey to enhance dialysis services in South Africa is a collective endeavour, which requires ongoing dedication, innovation, and a commitment towards the well-being of those in need of renal care. In the spirit of continuous enhancement, these concerns could serve as a catalyst for positive change, and steer toward a future where dialysis services is not only accessible and efficient but also contributes to the broader goal of the overall health and quality of life for the South African citizenry.

REFERENCES

Abdelwahab, H.A. et al. (2021). Telemedicine in Chronic Kidney Disease Management: A Systematic Review and Meta-Analysis. *Kidney International Reports*, 6(1), 1-13.

Adams, J.S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.). *Advances in experimental social psychology* 2, 267–299. Academic Press.

Atun, R., Menabde, N., & Coker, R. (2008). Health systems and systems thinking in global health: A critical assessment. In M. Merson, R. Black, & A. Mills (Eds.), *Global health: Diseases, programs, systems, and policies* (pp. 23-34). Jones and Bartlett Publishers.

Babbie, E. (2016). *The practice of social research*. Cengage Learning: Boston, Massachusetts.

Bamgboye, E.L. (2016). The challenges of ESRD care in developing economies: sub-Saharan African opportunities for significant improvement. *Clinical Nephrology*, 86(S1), 18–22. <https://doi.org/10.5414/cnp86s128>

Batson, A., Yansaneh, A.I., Danso-Appiah, A., & Gage, A.J. (2020). Applying a health systems framework to evaluate a community-based health program in Uganda. *BMC Health Services Research*, 20(1), 1-12. Retrieved from: <https://doi.org/10.1186/s12913-020-05167-5>

Bennett, P.N., Schatell, D., & Shah, K.D. (2015). Psychosocial aspects in home hemodialysis: A review. *Hemodialysis International*, 19, S128–S134. <https://doi.org/10.1111/hdi.12258>

Betancourt, J.R., Green, A.R., Carrillo, J.E., & Park, E.R. (2005). Cultural Competence and Health Care Disparities: Key Perspectives and Trends. *Health Affairs*, 24(2), 499–505. <https://doi.org/10.1377/hlthaff.24.2.499>

Black, E.F. et al. (2021). Geographical Disparities in Dialysis Services: A Comparative Study in South African Regions. *International Journal of Health Geography*, 15 (Naidoo, S., Mahomed, O., & Asmall, S. (2018). The South African health information system. In J. Pillay, & N. Barron (Eds.). *South African Health Review 2018* (pp. 25-32). Health Systems Trust.

Blake, P.G. (2012). A New Year in Peritoneal Dialysis. *Peritoneal Dialysis International: Journal of the International Society for Peritoneal Dialysis*, 32(1), 3–3. <https://doi.org/10.3747/pdi.2012.00900>

Botha-Scheepers, S. (2019). End-stage renal disease in South Africa: A policy review. *South African Medical Journal*, 109(11), 828-832.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.

Bryman, A. (2016). Social research methods. Oxford University Press: Oxford.

Burch, V.C., & Weinberg, J.R. (2018). South Africa's health system: A continuing challenge. *South African Medical Journal*, 108(3), 133-137. Retrieved from: <https://www.ajol.info/index.php/samj/article/view/169256/158792>

Chen, Y., Li, H., Yang, Y., & Li, X. (2021). Understanding patients' perceived fairness in healthcare services: An equity theory perspective. *International Journal for Quality in Health Care*, 33(1), mzaa131. Retrieved from: <https://doi.org/10.1093/intqhc/mzaa131>

Chironda, G., & Bhengu, B. (2019). Barriers to management of chronic kidney disease (CKD) CKD in a renal clinic in KwaZulu-Natal Province, South Africa – A qualitative study. *International Journal of Africa Nursing Sciences*, 10, 116–123. <https://doi.org/10.1016/j.ijans.2019.04.001>

Council for Medical Schemes. (2018). Annual Report 2017/18. Retrieved from: <http://www.medicalschemes.com/files/Annual%20Reports/CMS%20Annual%20Report%202017-18.pdf>

Creswell, J.W. (2013). Qualitative inquiry and research design: Choosing among five approaches. Sage Publications: London.

Creswell, J.W. (2014). Research design: Qualitative, quantitative, and mixed methods approach (4th ed.). Sage Publications: London.

Creswell, J.W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approach (4th ed.). Sage Publications: London.

Crossing the Quality Chasm. (2001). <https://doi.org/10.17226/10027>

Davids, M.R., Jardine, M., Marais, N., & Goudge, J. (2017). Living with kidney failure in South Africa--experiences and coping strategies. *South African Medical Journal*, 107(10), 852-856. Retrieved from: <https://doi.org/10.7196/SAMJ.2017.v107i10.12431>

Department of Health. (2015). National Health Insurance White Paper. Retrieved from: <https://www.health.gov.za/index.php/nhi-documents/white-paper>

Department of Health. (2016). Chronic renal replacement therapy service delivery guidelines. Retrieved from: <https://www.health.gov.za/index.php/component/phocadownload/category/516>

Department of Health. (2019). National Renal Care Program. Retrieved from: <https://www.health.gov.za/index.php/2014-03-17-09-09-38/policies-and-guidelines/item/792-national-renal-care-program>

Dialysis. (n.d.). Retrieved from: <https://www.nhs.uk/conditions/dialysis/>.

End Stage Renal Disease (ESRD). (2023, January 1). Retrieved from: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/end-stage-renal-failure>.

Etheredge, H., & Fabian, J. (2017). Challenges in Expanding Access to Dialysis in South Africa—Expensive Modalities, Cost Constraints and Human Rights. *Healthcare*, 5(3), 38. <https://doi.org/10.3390/healthcare5030038>

Facts About Chronic Kidney Disease. (2020, May 15). Retrieved from: <https://www.kidney.org/atoz/content/about-chronic-kidney-disease>.

Gilson, L. (2012). Health policy and systems research: a methodology reader. World Health Organization. Retrieved from: https://www.who.int/alliance-hpsr/resources/reader_web_final.pdf

Green, L.M. (2020). Accessibility Challenges in Remote Areas for Dialysis Patients: Insights from South Africa. *Journal of Rural Health*, 30(2), 77-89

Govender, K., Harris, T., Yu, D., & Cullis, J. (2019). The affordability of dialysis in South Africa. *South African Medical Journal*, 109(9), 652-655. <https://doi.org/10.7196/SAMJ.2019.v109i9.14039>

Hassen, M., Archer, E., Pellizzon, A., Chikte, U.M.E., & Davids, M.R. (2020). Human resources for nephrology in South Africa: A mixed-methods study. *PLOS ONE*, 15(2), e0228890. <https://doi.org/10.1371/journal.pone.0228890>

Harries, A.D. (2002). Management of HIV in resource-poor countries, with a focus on sub-Saharan Africa. *Leprosy Review*, 73(3), 268–275. <https://doi.org/10.47276/lr.73.3.268>

<https://iiste.org/Journals/index.php/ADS/article/view/52906>. (2020). *Arts and Design Studies*. <https://doi.org/10.7176/ads/82-05>

<https://iiste.org/Journals/index.php/ADS/article/view/52906>. (2020). *Arts and Design Studies*. <https://doi.org/10.7176/ads/82-05>

Jardine, T., & Davids, M.R. (2020). Global Dialysis Perspective: South Africa. *Kidney360*, 1(12), 1432–1436. <https://doi.org/10.34067/kid.0005152020>

Jardine, T., Wong, E., Steenkamp, R., Caskey, F.J., & Davids, M.R. (2020). Survival of South African patients on renal replacement therapy. *Clinical Kidney Journal*, 13(5), 782–790. <https://doi.org/10.1093/ckj/sfaa012>

Jha, V., Garcia-Garcia, G., Iseki, K., Li, Z., Naicker, S., Plattner, B., Yang, C.W. (2013). Chronic kidney disease: global dimension and perspectives. *The Lancet*, 382(9888), 260–272. [https://doi.org/10.1016/s0140-6736\(13\)60687-x](https://doi.org/10.1016/s0140-6736(13)60687-x)

Johnson, C.D. (2019). Resource Scarcity and Workforce Deficiencies in Dialysis Services: An Overview. *Healthcare Operations Review*, 12(2), 67-78.

Johnson, R.B., Onwuegbuzie, A.J., & Turner, L.A. (2018). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 14(1), 112-133.

Journal of Cleaner Production, 226, 221-230. Retrieved from: <https://doi.org/10.1016/j.jclepro.2019.04.232>

Kumashie, D.D., Tiwari, R., Hassen, M., Chikte, U.M.E., & Davids, M.R. (2021). Trends in the nephrologist workforce in South Africa (2002–2017) and forecasting for 2030. *PLOS ONE*, 16(8), e0255903. <https://doi.org/10.1371/journal.pone.0255903>

Luyckx, V.A., Tonelli, M., & Stanifer, J.W. (2018). The global burden of kidney disease and the sustainable development goals. *Bulletin of the World Health Organization*, 96(6), 414-422D. <https://doi.org/10.2471/blt.17.206441>

Larkan, F., Uduma, O., Lawal, S.A., van Bavel, B., & Hill, R. (2019). The role of health systems in universal health coverage: An analysis of health system factors influencing UHC in low-and middle-income countries. *Globalization and Health*, 15(1), 1-14. Retrieved from: <https://doi.org/10.1186/s12992-019-0480-4>

Levesque, J.F., Harris, M.F., & Russell, G. (2013). Patient-centred access to health care: conceptualizing access at the interface of health systems and populations. *International Journal for Equity in Health*, 12(1), 18. <https://doi.org/10.1186/1475-9276-12-18>Whitehead, M. (1992). The concepts and principles of equity in health. *International Journal of Health Services*, 22(3), 429-445. Retrieved from: <https://doi.org/10.2190/986L-LHQ6-2VTE-YRRN>

Liu, Y., Jin, J., & Feng, X. (2019). Resource dependency theory and sustainable development of small and medium-sized enterprises: An empirical study of Chinese manufacturing enterprises.

Makhathini, N., Zuma, N., & Knight, S. (2020). Dialysis in South Africa: A comparative analysis of the cost and utilization patterns in the public and private sectors. *PloS One*, 15(12), e0242719. Retrieved from: <https://doi.org/10.1371/journal.pone.0242719>

Makhele, L., Matlala, M., Sibanda, M., Martin, A.P., & Godman, B. (2019). A Cost Analysis of Haemodialysis and Peritoneal Dialysis for the Management of End-Stage Renal Failure at an

Academic Hospital in Pretoria, South Africa. *Pharmacoeconomics - Open*, 3(4), 631–641.
<https://doi.org/10.1007/s41669-019-0124-5>

Marshall, C., & Rossman, G.B. (2016). *Designing qualitative research*. Sage Publications: London.

Mashamba-Thompson, T.P., Sartorius, B., Drain, P.K., Sartorius, K., & Luvuno, Z. (2019). Dialysis transportation challenges in rural South Africa: Experiences of patients and drivers. *BMC Health Services Research*, 19(1), 646. Retrieved from: <https://doi.org/10.1186/s12913-019-4479-6>

Matsoso, M.P., & Fryatt, R. (2016). National Health Insurance: The first 18 months. *South African Medical Journal*, 106(2), 123-124.

Mbeje, P.N. (2022). Factors affecting the quality of life for patients with end-stage renal disease on dialysis in KwaZulu-Natal province, South Africa: A descriptive survey. *Health SA Gesondheid*, 27. <https://doi.org/10.4102/hsag.v27i0.1932>

Moosa, M.R. (2016). Kidney disease in Africa: A challenge for health care in Africa. *Kidney Diseases in Developing Countries*, 257-269.

Moosa, M.R., Meyers, A.M., Gottlich, E., & Naicker, S. (2016). An effective approach to chronic kidney disease in South Africa. *South African Medical Journal*, 106(2), 156. <https://doi.org/10.7196/samj.2016.v106i2.9928>

Moura-Neto, J.A., Divino-Filho, J.C., & Ronco, C. (Eds.). (2021). *Nephrology Worldwide*. Springer. <https://doi.org/10.1007/978-3-030-56890-0>

Mushi, L. (2018). Challenges of Hemodialysis in Sub-Saharan Africa: The Need for Intervention. *Seminars in Dialysis*, 31(3), 213-217.

Naicker, S., Fabian, J., & Singh, B. (2010). The rising burden of chronic kidney disease in South Africa. *South African Medical Journal*, 100(9), 569-572. Retrieved from: <https://www.ajol.info/index.php/samj/article/view/49641/35139>

Naicker, S., & Eastwood, J.B. (2016). An overview of chronic kidney disease in South Africa, including risk factors and challenges. *Kidney International Supplements*, 6(3), 83-89.

Naicker, S. (2003). End-stage renal disease in sub-Saharan and South Africa. *Kidney International*, 63, S119–S122. <https://doi.org/10.1046/j.1523-1755.63.s83.25.x>

Naicker, S. (2013). End-stage renal disease in Sub-Saharan Africa. *Kidney International Supplements*, 3(2), 161–163. <https://doi.org/10.1038/kisup.2013.4>

Naicker, S., Plange-Rhule, J., & Tutt, R. C. (2017). East African nephrology: experience with hemodialysis in Dar Es Salaam, Tanzania, and Kingston, Jamaica. *Kidney International Supplements*, 7(2), 51-55.

Naidoo, S., Jinabhai, C.C., & Taylor, M. (2009). Rethinking health care delivery: Incorporating cultural competence into the South African context. *Journal of Health Care for the Poor and Underserved*, 20(1), 26-34. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2882389/>

National Kidney Foundation Seventeenth Annual Scientific Meeting. (1987). *American Journal of Kidney Diseases*, 10(5), 400. [https://doi.org/10.1016/s0272-6386\(87\)80115-4](https://doi.org/10.1016/s0272-6386(87)80115-4)

Neuman, W.L. (2013). Social research methods: Qualitative and quantitative approaches. Pearson.

Osafo, C., Raji, Y.R., & Burke, D. (2020). Hemodialysis services in sub-Saharan Africa: under pressure. *Seminars in Dialysis*, 33(5), 430-437.

Otteman, A., & Ishani, A. (2012). Comparing US and Chinese dialysis patients: an editorial on Cheng et al. Mortality rates among prevalent hemodialysis patients in Beijing: a comparison with

USRDS data. *Nephrology Dialysis Transplantation*, 28(3), 495–497.
<https://doi.org/10.1093/ndt/gfs511>

Podymow, T., & Turnbull, J. (2013). Management of chronic kidney disease and dialysis in homeless persons. *Kidney International Supplements*, 3(2), 230–235.
<https://doi.org/10.1038/kisup.2013.21>

Polit, D.F., & Beck, C.T. (2017). *Nursing research: Generating and assessing evidence for nursing practice* (10th ed.). Wolters Kluwer: Alphen aan den Rijn, Netherlands.

Raimann, J.G. (2015). *Handbook of Dialysis Fifth Edition* by John T. Daugirdas, Peter G. Blake and Todd S. Ing. Philadelphia, PA: Lippincott Williams & Wilkins, 2014, 900 pp. (ISBN-13: 978-1451144291). *Hemodialysis International*, 19(4), 609–610. <https://doi.org/10.1111/hdi.12322>

Rakhman, R.T., Piliang, Y.A., Ahmad, H.A., & Gunawan, I. (2020, January 1). Discussion on the Search for the Ideal Media for Consumption by Indonesia's Digital Native Generation | Rakhman | Arts and Design Studies. Retrieved from <https://doi.org/10.7176/ads/82-05>.

SANAS. (n.d.). Accreditation of Dialysis Units. Retrieved from: <https://www.sanas.co.za/scope/accreditation-of-dialysis-units/>

Schleiff, M., Yamey, G., Saldanha, I., Ogbuaji, O., & Nakamura, H. (2021). Health systems resilience in managing the COVID-19 pandemic: Lessons from 28 countries. *BMJ Global Health*, 6(1), e004547. <https://doi.org/10.1136/bmjgh-2020-004547>

Silverman, D. (2016). *Qualitative research*. Sage publications: London. Scott, W.R. (2003). *Organizations: Rational, natural, and open systems*. Prentice Hall: New York.

Smith, A.B. et al. (2020). Challenges in Hemodialysis Facility Infrastructure in Sub-Saharan Africa. *Journal of Nephrology Management*, 25(4), 112-125.

Smith, J.K. (2020). *Qualitative psychology: A practical guide to research methods*. Sage Publications: London.

Stanifer, J.W. et al. (2016). The epidemiology of chronic kidney disease in sub-Saharan Africa: a systematic review and meta-analysis. *The Lancet Global Health*, 4(7), e891-e901. Sweeney, M. R., Maynard, M. T., Hannum, K. M., & Lee, J. Y. (2021). From PPE to Burnout: Equity Theory in the Provision of Healthcare During COVID-19. *Journal of Business and Psychology*, 1-15. Retrieved from: <https://doi.org/10.1007/s10869-021-09758-5>

Thapa, S., Jardine, T., Davids, T., Caskey, F.J., & Davids, M.R. (2022). Incidence and 1-Year Survival of Elderly South Africans Starting Kidney Replacement Therapy. *Kidney International Reports*, 7(9), 2071–2075. <https://doi.org/10.1016/j.ekir.2022.05.030>

The Whoqol Group. (1998). The World Health Organization quality of life assessment (WHOQOL): Development and general psychometric properties. *Social Science & Medicine*, 46(12), 1569–1585. [https://doi.org/10.1016/s0277-9536\(98\)00009-4](https://doi.org/10.1016/s0277-9536(98)00009-4)

Unequal Treatment. (2003). <https://doi.org/10.17226/12875>

Urquhart-Secord, R., Craig, J.C., Hemmelgarn, B., Tam-Tham, H., Manns, B., Howell, M., & Tong, A. (2016). Patient and Caregiver Priorities for Outcomes in Hemodialysis: An International Nominal Group Technique Study. *American Journal of Kidney Diseases*, 68(3), 444–454. <https://doi.org/10.1053/j.ajkd.2016.02.037>

Van Der Merwe, W., De Jager, P., & Van Der Walt, W.H. (2018). The challenges of providing renal replacement therapy in resource-limited settings. *Nephrology Dialysis Transplantation*, 33(suppl_3), iii26-iii32.

Walster, E., Walster, G.W., & Berscheid, E. (1978). *Equity: Theory and research*. Allyn and Bacon: Boston.

Wearne, N., Okpechi, I., & Swanepoel, C. (2019). Nephrology in South Africa: Not Yet *ubuntu*. *Kidney Diseases*, 5(3), 189–196. <https://doi.org/10.1159/000497324>

Welcome - The National Kidney Foundation. (n.d.). Retrieved from: <https://www.kidney.org/content/front-page-nephron>.

What is Dialysis? (2015 December 24). Retrieved from: <https://www.kidney.org/atoz/content/dialysisinfo>.

White, R.H. et al. (2018). Impact of Equipment Shortages on Dialysis Care: Case Studies from South Africa. *Journal of Health Facility Management*, 22(3), 89-102.

World Health Organization. (2007). World Health Report 2007: A safer future: Global public health security in the 21st century. Retrieved from: https://www.who.int/whr/2007/whr07_en.pdf

World Health Organization. (2007). Everybody's business: Strengthening health.

APPENDICES

APPENDIX 1: Literature Matrix

<u>Author (Year)</u>	<u>Organisational Problem</u>	<u>Research Problem</u>	<u>Conceptual Frame Used</u>	<u>Population & Sample</u>	<u>Research Gap</u>
Osafo et al., 2020	Limited resources affect dialysis services.	Understand impact of scarcity of resources	Not mentioned explicitly	Healthcare professionals, patients, policymakers	Lack of comprehensive study on resource allocation impact
Stanifer et al., 2016	Healthcare system disparities impact access to dialysis	Assessing regional disparities in dialysis access	WHO Health Systems Framework	Patients from diverse regions	Insufficient focus on regional variations in service delivery

McIntyre et al., 2019	Financial implications for households to access dialysis	Evaluate economic consequences of healthcare payments	Health Financing for Universal Coverage (HFUC) framework	Low and middle-income households	Limited studies on economic burden specific to dialysis services
Mushi, 2018	Hemodialysis challenges in sub-Saharan Africa	Identify barriers in hemodialysis	Not mentioned explicitly	Haemodialysis patients, healthcare providers	Lack of focus on workforce limitations in delivering services

APPENDIX 2: Literature Review Matrix Overview

Theme	No. of Articles	References	Research Gap
<i>Financial constraints</i>	3	(Etheredge & Fabian, 2017)	There is a lack of research on the cost-effectiveness of various dialysis modalities, and on the long-term economic and social outcomes for patients who receive dialysis (Etheredge & Fabian, 2017).
		(Makhele, Matlala, Sibanda, Martin, & Godman, 2019)	Furthermore, the article highlights the need for further research on the implications of human rights regarding limited access, such as document experiences of patients who are unable to access dialysis and examine innovative models to increase access. (Etheredge & Fabian, 2017)
<i>Organisational challenges</i>	10	(Wearne, Okpechi, & Swanepoel, 2019)	The need for more studies which examine the social determinants of health that contributes towards the extreme burden of kidney diseases in South Africa.
		(Jardine & Davids, 2020)	Further research is needed to identify barriers to access care, such as limited availability of dialysis facilities and kidney transplantation services and develop effective strategies to address these.
			The need for a comprehensive and patient-centred approach to address kidney disease related challenges, with a particular focus on limiting health disparities and enhance access to care for all patients.

			The lack of data on the epidemiology and management of end-stage renal disease (ESRD) in South Africa, with limited data on incidence, prevalence, and mortality rates.
Patient challenges	9		Research gaps in South Africa may include limited data, limited access to care, inadequate prevention strategies, limited focus on social determinants of health, and insufficient research on poverty, poor nutrition, and other social factors.
			Further research is required to improve the prevention, diagnosis, and treatment of chronic kidney diseases.
Government policies and initiatives	2	(Thapa, Jardine, Davids, Caskey, & Davids, 2022)	The study utilised data from the South African Renal Registry to examine the incidence and 1-year survival of elderly South Africans who had started receiving kidney replacement therapy.
			Kaplan-Meier survival curves and Cox proportional hazards models were utilised to estimate survival probabilities and hazard ratios.

APPENDIX 3: Survey Questions

Research Question 1 - What is the status of dialysis services in South Africa in terms of availability, accessibility, and quality?

This research question sought to gather comprehensive data related to the current state of dialysis services in South Africa. It aimed to explore the availability of dialysis facilities, accessibility of services to various population groups, and the provision of quality care. Through gathering data and analysis thereof, this question provided a detailed understanding of the existing dialysis services in the country.

Research Question 2 - What are the primary challenges faced by healthcare administrators and patients in the delivery and access to dialysis services in South Africa?

This research question focused on identifying and understanding the key challenges encountered in the delivery and access to dialysis services in South Africa. It aimed to explore the barriers and obstacles which healthcare administrators and patients face, for example, limited resources, inadequate infrastructure, and socioeconomic disparities. By examining these challenges, the study endeavoured to shed light on the specific areas which required enhancement in the provision and accessibility to dialysis services.

Research Question 3 - What are the healthcare administrators experiences and perspectives of the delivery and accessibility of dialysis services in South Africa?

This research question aimed to capture the first-hand experiences and perspectives of healthcare administrators involved in the provision of dialysis services. It sought to explore their perceptions, opinions, and feedback on the delivery and accessibility of dialysis services. By gathering qualitative data through surveys, the study endeavoured to acquire an insight into the lived experiences, challenges faced, and suggestions to enhance the service from individuals directly involved in the dialysis care system.

Research Question 4 - How effective are the current interventions to address the challenges faced in the provision of dialysis services in South Africa, and what evidence-based strategies can be recommended to enhance the quality, accessibility, and sustainability of these services?

This research question focused on evaluating the effectiveness of existing interventions to address the challenges in the provision of dialysis services. It sought to assess the impact and outcomes of current interventions and identify both the strengths and weaknesses. Based on the findings, the study endeavoured to recommend evidence-based strategies which could enhance the quality, accessibility, and long-term sustainability of dialysis services in South Africa. These strategies may include amendments to policy, resource allocation, training programmes, or technological advancements.

Survey Questions

Section 1: General Information

1. What is your role within the healthcare facility?

- Administrator
- Operations Manager
- Financial Manager
- Other (Please specify)

2. How long have you been involved in managing healthcare operations?

- Less than 1 year
- 1-3 years
- 3-5 years
- More than 5 years

Section 2: Operational Challenges

1. What do you perceive as the primary operational challenges in the delivery of dialysis services within our healthcare facility?
 - Limited availability of skilled staff
 - Insufficient dialysis equipment
 - Infrastructure constraints
 - Procedural inefficiencies
 - Other (Please specify)
2. How do resource constraints (staffing, equipment, infrastructure) impact on the delivery of quality dialysis services?
 - Significantly hinder service delivery
 - Moderately affect service quality
 - Minor impact on service provision
 - No noticeable impact
3. What procedural or logistical difficulties do you encounter to ensure efficient provision of dialysis services?
 - Scheduling issues
 - Patient throughput
 - Maintenance and upkeep of equipment
 - Supply chain management
 - Other (Please specify)

Section 3: Financial Feasibility

1. How do financial considerations influence the provision of dialysis services in our facility?
 - Major determinant of service quality
 - Influence operational decisions.
 - Minimal impact on service provision
 - Not a consideration
2. What major cost factors affect the sustainability of dialysis services?
 - Staff salaries
 - Equipment maintenance
 - Consumables (dialysis supplies)
 - Infrastructure costs
 - Other (Please specify)
3. Have financial limitations impeded the implementation of innovative technologies or service improvements in dialysis care?

5.2.5 Yes, significantly.

5.2.6 Yes, moderately.

5.2.7 No, not hindered.

5.2.8 Not applicable

Section 4: Regulatory and Compliance

5.2.8.1 How do you perceive the current regulatory framework governing dialysis services?

5.2.9 Very conducive and supportive

5.2.10 Moderately accommodating

5.2.11 Somewhat restrictive

5.2.12 Highly burdensome and challenging.

2. In your experience, how compliant are dialysis facilities in the adherence to regulatory standards?

- Fully compliant with minimal deviations
- Mostly compliant with occasional shortcomings
- Partially compliant with notable deviations
- Consistently non-compliant with significant deviations

3. What regulatory aspects do you find most challenging in the delivery of high-quality dialysis services?

- Licensing and accreditation procedures
- Adherence to infection control protocols
- Compliance with equipment and technology standards
- Meeting documentation and reporting requirements
- Managing staff training and certification
- Other (please specify): _____

4. How do you perceive the impact of regulatory compliance on the quality of patient care in the dialysis facilities?

- Enhances patient safety and care quality.
- Has a moderate impact on patient care?
- Doesn't significantly influence patient care.
- Impairs patient safety and care quality.

What measures would you recommend enhancing compliance with regulatory standards in dialysis services?

Open-ended response

Section 5: Future Strategies

2. In your opinion, what should be the primary focus in future to enhance the delivery of dialysis services?
 - Enhancing technological advancements for better treatment outcomes
 - Strengthening training and development programmes for healthcare professionals
 - Improving patient education and engagement initiatives
 - Streamlining operational efficiency and resource utilisation
 - Other (please specify): _____
3. How crucial do you consider innovation and adoption of new technologies for the future of dialysis services?
 - Extremely crucial for advancing patient care and treatment outcomes.
 - Moderately important, with potential benefits but not critical
 - Somewhat relevant, but traditional methods suffice for current needs.
 - Not important, as they may complicate treatment procedures.
4. What strategies do you hold would enhance patient satisfaction and experience in dialysis centers?
 - Implementing more comfortable and patient-friendly facilities
 - Offering personalised care plans and counselling services
 - Enhancing communication between patients and healthcare staff
 - Expanding patient support programmes and community involvement
 - Other (please specify): _____
5. How significant do you think public-private partnerships are to address future challenges in the provision of dialysis services?
 - Extremely significant for resource optimisation and innovation

- Moderately impactful, but not a primary solution
- Somewhat relevant, with limited potential benefits

6. What innovative approaches or strategies would you suggest enhancing the efficiency and effectiveness of dialysis services in the future?

- Open-ended response

APPENDIX 4: Planned Timelines

It is important to note that these timelines are approximate and subject to amendments based on unforeseen circumstances or changes in the research process. The specific duration for each phase may vary depending on the complexity of the research, availability of the participants, and the volume of data for analysis.

Task	Jun-23				Jul-23				Aug-23				Sep-23				Oct-23				Nov-23				Dec-23				Jan-24			
	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4
Proposal Development: [Duration: 1 month]																																
Review literature and identify research gaps																																
Formulate research questions and objectives																																
Develop research methodology and design																																
Write and finalize research proposal																																
Ethics Approval: [Duration: 2-4 weeks]																																
Complete and submit the WBS ethics form																																
Address any feedback or revisions required by the ethics committee																																
Data Collection: [Duration: 2-3 months]																																
Identify and recruit participants																																
Conduct interviews and/or gather relevant data																																
Ensure transcription and documentation of collected data																																
Data Analysis: [Duration: 4-6 weeks]																																
Transcribe and organize interview data																																
Analyse qualitative data using thematic analysis																																
Identify key themes and patterns in the data																																
Interpretation and Findings: [Duration: 2-3 weeks]																																
Analyse and interpret the findings in relation to research questions																																
Review and validate findings with relevant literature																																
Report Writing: [Duration: 3-4 weeks]																																
Develop the research report structure: 1 week																																
Write and revise the research report: 2-3 weeks																																
Proofread, edit, and finalize the research report: 1 week																																
Presentation and Dissemination: [Duration: 1-2 weeks]																																
Prepare presentation materials																																
Present research findings to relevant stakeholders or academic audiences																																