UNIVERSITEIT VAN PRETORIA
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School of Health Care Sciences
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FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTI-RETROVIRAL THERAPY IN THE UTHUKELA DISTRICT IN KWAZULU-NATAL, SOUTH AFRICA

Submitted in fulfilment of the requirements for the degree

Master's Degree

Nursing Science

by

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June 2024

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DECLARATION

I, Nomcebo Philile Dlamini,
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declare that:

FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTI-RETROVIRAL THERAPY IN THE UTHUKELA DISTRICT OF KWAZULU-NATAL, SOUTH AFRICA

is my original work and that has not been submitted before for any degree at the University of Pretoria or at any other institution. All sources that have been used or quoted have been acknowledged by means of complete references in the text and in the list of sources.

28-Jun-2024

Signed

Date

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DEDICATION

I dedicate this study, and my whole Master's Degree to my dearly beloved parents Bongani and Winniefrida Dlamini. Our plan of pursuing Medicine after obtaining my Nursing Degree did not work out but look at what greater heights I have reached! Thank you for your relentless support. For always encouraging and reminding me that I can achieve anything and everything I put my mind to, no matter the circumstances. I honestly do believe that I get that resilience from both of you.

To my late mother whom we lost to a cancer battle in August 2023. *Ahh kodwa Mah*… I am so sad you could not get to see me lift this one up, but this one is for you, this one is for you and Mr B. Thank you for always showing me how proud you are of the woman you raised. I love and carry you in my heart always.

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ABSTRACT

Introduction: High rates of missed clinic appointments among adults on Anti-Retroviral Therapy (ART) in KwaZulu-Natal pose a great threat to the success of the ART programme in South Africa. This is seen in the number of missed appointments reported by the Three Interlinked Electronic Registers system. Missed appointments predict poor adherence to ART and are associated with sub-optimal clinical outcomes. Demographic, patient-related, health systems and socio-cultural related factors reportedly contribute to missed appointments.

Purpose: This study aimed to determine the factors associated with missed appointments among adults on Anti-Retroviral Therapy in the uThukela District of KwaZulu-Natal.

Methods: A comparative descriptive study using a cross-sectional survey was conducted. Using the convenience sampling technique, 104 adults on ART (missed appointment group = 52, adherent group = 52) were recruited for the study. Data were collected using a structured and validated survey questionnaire. Statistical Package for the Social Sciences (SPSS) version 20 was used for data analysis. Descriptive statistics such as frequencies were used to summarise the results. Inferential statistics namely, Chi-square, Mann-Whitney and Fisher's exact tests, were used to compare the responses between the groups. Principles of beneficence, respect for human, confidentiality and voluntary participation were maintained.

Results: Three (n=3) demographic, seven (n=7) patient-related and eight (n=8) health-related factors were significantly associated with missed appointments ($p<0.05$). The factors are gender, employment status, HIV status disclosure, stigma, discrimination or isolation, lack of adequate nutrition, side effects of ARVs, mistreatment by the clinic staff, lack of counselling regarding ARVs, use of traditional medicine, lack of transport or transport fare, unacceptable facility setting, unacceptable rendering of HIV services, lack of nutritional support, inadequately prepared clinic staff, lack of comprehensive HIV care package, staff attitudes, dissatisfaction with the quality of services and being turned back without receiving health care services.

Conclusion and Recommendations: The results identified factors that contributed to missed ART appointments. The results are expected to contribute to the existing body of knowledge on missed appointments. Recommendations for further research, patient care, staff training and strengthened stakeholder engagement have been provided to address ART missed appointments in this region.

Keywords: Adults, Anti-Retrovirals, Anti-Retroviral Therapy, Appointment, Associate, Factors, HIV/AIDS, Missed.

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
AIDS	Acquired Immuno-Deficiency Syndrome
ART	Anti-Retroviral Therapy
ARV	Anti-Retro Viral
CC	Creative Commons
CCMDD	Central Chronic Medicine Dispensing and Distribution
CDC	Centre for Disease Control
HIV	Human Immunodeficiency Virus
KZN	KwaZulu-Natal
LTFU	Lost-to-Follow Up
MMD	Multi-Month Dispensing
NDoH	National Department of Health
PEPFAR	U.S President's Emergency Plan For AIDS Relief
PHC	Primary Health Care
PLWHA	People Living With HIV/AIDS
PMTCT	Preventing Mother to Child Transmission
SASSA	South African Social Security Agency
SPSS	Statistical Package for the Social Sciences
SSA	Sub-Saharan Africa
USAID	United States Agency for International Development
UNAIDS	The joint United Nations programme on HIV/AIDS
UP	University of Pretoria
UTT	Universal Test and Treat
TROA	Total Remaining On ART
WHO	World Health Organisation

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CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

In 2023, global statistics revealed that an estimated 39 million people were reported to be living with Human Immunodeficiency Virus (HIV) (UNAIDS, 2023; WHO, 2023). Out of these, 20.8 million people were reported to be in the Eastern and Southern African regions. South Africa contributed a high of 7.9 million, and with that, KwaZulu-Natal (KZN) accounted for the highest prevalence in the world with 2.5 million people living with HIV (KZN Health, 2022). It has been over eight years since the Universal Test and Treat (UTT) policy was first implemented in the global fight against the spread of Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome (HIV/AIDS) (USAID, 2016), and only 28.2 million people (74%) were reported to be on ART globally (UNAID, 2021).

The UTT policy was piloted to bring viral suppression among 90%, if not all, of People Living with HIV/AIDS (PLWHA) (USAID, 2016). In response to the implementation in South Africa, the National Department of Health (NDoH) further asserted that viral load suppression is the key to an HIV-free generation. The benefits of viral load suppression include a significant reduction in prevalence as well as mortality among those diagnosed with HIV in the country, an increase in the life expectancy of both men and women living with HIV, and a reduction in the progression to Acquired Immunodeficiency Syndrome (AIDS) and opportunistic infections (NDoH, 2016).

The Joint United Nations Programme on HIV/AIDS (UNAIDS) recommended the 90-90-90 strategy for all countries including South Africa, to scale up HIV testing for 90% of the population to know their HIV status, 90% of the people who know their status to be on ARVs and 90% of those on ART to adhere and be virally suppressed (UNAIDS, 2023). In terms of ART availability, South Africa has the largest ART programme worldwide with a coverage of about 5,4 million people who are reported to be on treatment (UNAIDS, 2023). Despite the uptake of ART, there are still challenges with missed clinic appointments in adults on ART (Iwuji, Osler, Mazibuko, Hounsome, Ngwenya, Chimukuche, Khoza, Gareta, Sunpath, Boulle, & Herbst, 2021). A study by Simelane (2019) reports that the defaulting on clinic visits among ART clients remains an unresolved issue in the fight against the HIV pandemic, as adherence

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to ART is a critical predictor of treatment efficacy. As such, South Africa remains on the losing side of the battle against the HIV pandemic, and towards reaching an HIV-free generation.

1.2 BACKGROUND

Antiretroviral Therapy missed appointments in adults are attributed to four main clusters namely patient personal factors (defaulting medicine), medication regimen (i.e. side effects and pill count burden), patient-health-care-provider relationship and the system of care (WHO, 2020; Kioko & Pertet, 2017). A systematic review by Heestermans, Browne, Aitken, Vervoort and Klipstein-Grobusch (2016), on the determinants of non-adherence to ART among HIV-positive adults in Sub-Saharan Africa (SSA), reports that there were nine main determinants of predictors of missed clinic appointments in this region. These determinants were the use of traditional/herbal medicine, alcohol, male gender, dissatisfaction with healthcare facilities and healthcare workers, depression, discrimination and stigmatisation, and poor social support. Whereas supporters of compliance to clinic appointments were found to be counselling and education interventions, memory aids, and active disclosure of HIV status (Heestermans *et al.,* 2016; Croome, Ahluwalia & Hughes, 2017; Shubber, Mills, Nachenga & Vreeman, 2016).

Healthcare workers-related factors that contribute to patients' missed clinic appointments include rudeness and condemnation by the healthcare workers (Heestermans *et al*., 2016). Health facility determinants associated with missing appointments are related to lack of privacy at the facility, crowded pharmacies, consultations with multiple patients in a room, lost files as well as long waiting times and limited clinic operating times (ibid). In a study on key barriers to anti-retroviral (ARV) treatment adherence at a clinic in uThukela, KZN, Cele (2018) found that side effects, pill burden, no improvement while on ART, use of alternative (traditional) medicine, improved health, communication with health care workers, practical problems/ socio-economic issues (poverty), mobility and migration labour, gender and social organisation (masculinity), stigma and discrimination leading to fear of disclosure, lack of community support, and service delivery were the twelve main barriers to adherence to ART in this district. Whereas Chikoka (2015), reports excellent compliance with ART appointments in Mpumalanga. This was attributed to the availability, effectiveness and comprehensiveness of HIV services, psychological support, and medical advances and further, longer duration of ART enhanced self-efficacy and facilitated adherence (ibid).

The missing clinic appointments in adults on ART remain a national challenge in reaching the goal of an HIV-free generation, as seen in Three Interlinked Electronic Registers (TIER.Net)

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reports (Macheka, 2016; Khezwa, 2017; Iwuji *et al.*, 2021). South Africa still faces high rates of missed appointments, thus alluding to non-adherence among adults on ARVs (Kheswa, 2017). Countries in the Sub-Saharan Africa region such as Zambia introduced a system called Multi-Month Dispensing (MMD) which assists in the extended provision and dispensing of ART treatment for a period of three months. A similar system, Central Chronic Medicine Dispensing and Distribution (CCMDD), introduced in KZN, proved to benefit both the client and the overburdened healthcare system (Phiri, McBride, Siwale, Hubbard & Bardon, 2021). However, the researcher observed, in practice, that TIER.Net missed clinic appointment reports indicated that there remained a high number of individuals who missed their follow-up clinic appointment dates by more than 7 to 90 days in uThukela District, rural KZN. TIER.net has also shown that these clients who had missed their appointments are virally unsuppressed, that is they have a viral load greater than 50 copies.

Additionally, previous studies have reported that the patient-healthcare-provider relationship is a critical component of ART adherence and that it could subsequently pose a threat to adherence. Therefore, the relationship is not a conducive or encouraging one (Heestermans *et al.*, 2016; Kheswa, 2017). Further to this, no notable recommendations had been put into practice to improve healthcare services rendered by clinic staff, and missed ART appointments remained a burden in Primary Health Care (PHC). Reported also in a paper, in which the authors observed that while many theories are useful in understanding the role of patient-related factors and the immediate social environment in missing clinic appointments, they largely ignored the influence of the health care system and healthcare worker-related factors on patient behaviour (Berden, Dobbels, Engberg, Hill & De Geest, 2012). This was given that behaviour was also influenced by factors from the system where patients lived and received health care (Berden *et al.*, 2012).

1.3 PROBLEM STATEMENT

In the worldwide fight against the HIV/AIDS pandemic, the United States Agency for International Development (USAID) states that people infected with HIV/AIDs were to be diagnosed, treated, and maintained on treatment to achieve the ultimate goal of optimal health for all and an HIV free generation (USAIDS, 2016). People who are on ART were linked to a local clinic where they would collect treatment monthly, receive support and be monitored for adherence to clinic visits and thus treatment (NDoH, 2019). The Centre for Disease Control (CDC) has added that the success of ART depends on the extent to which a client takes his or her treatment as prescribed, as well as being assessed and monitored by the healthcare

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professional during consultation at each clinic visit. Furthermore, healthcare providers could have a positive influence on medication-taking behaviours among HIV-infected patients by engaging in regular, ongoing discussions with them at every clinic visit to emphasise the benefits of ART adherence as well as how to be adherent (CDC, 2019).

Kheswa (2017) asserts that poor service, attitudes and conduct by clinic staff were found to be factors that contributed to clients not returning to the clinics and thus resulted in non-adherence to ART in adults (Kheswa, 2017). High rates of non-adherence among adults prevent attaining the global 90-90-90 goal (USAID, 2016) and consequences of non-adherence result in drug resistance, increased rate of side effects, increased risk of opportunistic infections, and unsuppressed viral load (WHO, 2020). Studies show that ART missed clinic appointments remain a global challenge in reaching the 90-90-90 goal, with South Africa still facing high rates of missed appointments among adults on ARVs (Heestermans *et al.* 2016, Kheswa, 2017; Simelane, 2019).

Furthermore, Nkambule (2012) proposes that a client is classified as having missed an appointment if she or he is three to seven days overdue. A client is classified as a defaulter if he or she is more than seven days overdue but is less than or equal to 90 days overdue in keeping a scheduled appointment. A client is classified as Lost-to-Follow Up (LTFU) if he or she has not attended an HIV care centre for more than 90 days since the last attended appointment date (Nkambule, 2012). The World Health Organisation (WHO), in strategies for early warning indicators, concurs with the operational definition of appointment, in that, a person is regarded as having missed appointments if the person has missed his/her appointment by three to seven days (WHO, 2010). If clients continuously miss their appointments by 90 days or more, they are then regarded as being LTFU. Figure 1.1 illustrates the operational definition below.

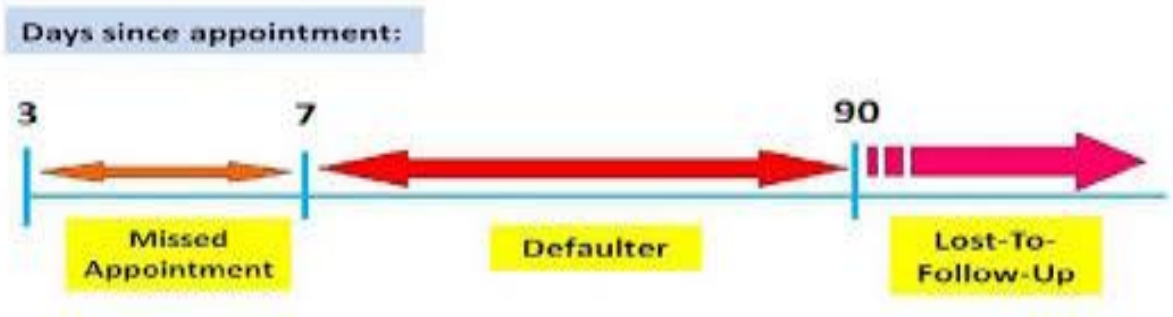

Figure 1.1: Operational definition of missed appointments (Nkambule, 2012)

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The researcher observed, in practice, that the occurrence remains a high number in adults. Approximately 252 individuals had missed their follow-up clinic appointment dates by more than seven to 90 days over a period of six months, at a Primary Health Care (PHC) facility in the uThukela District in the year 2022. There had also been a substantial number of those clients who had missed their appointments and had alluded to various reasons for their non-compliance to prescribed clinic appointments.

In view of the above, literature has shown that with interventions that had been in place for many years to curb the HIV epidemic, missed ART appointments at clinics remained one of the main obstacles to achieving optimal health for all and an HIV-free generation (Ikhile, 2023; Chamberlin, Mphande, Phiri, Kalande & Dovel, 2022). Having noted the scarcity of research on factors associated with missed appointments among adults on ART within this context and region, this study sought to, especially within this respective context, determine the factors that are associated with missed appointments among adults on ART in this region.

1.4 AIM, OBJECTIVES AND RESEARCH QUESTIONS OF THE STUDY

1.4.1 Aim of the study

The overall aim of the study was to investigate the factors associated with missed appointments among adults on Anti-Retroviral Therapy in the uThukela District of KwaZulu-Natal, South Africa.

1.4.2 Objectives

- To determine and identify the factors associated with missed clinic appointments among adults on ART in the uThukela District of KZN, South Africa.
- To determine the associations between demographic and interpersonal factors with missed clinic appointments among adults on ART in the uThukela District of KZN, South Africa.
- To determine the associations between health facility and health systems factors with missed clinic appointments among adults on ART in the uThukela District of KZN, South Africa.

1.4.3 Research question

- What are the factors that were associated with missed clinic appointments among adults on ART in the uThukela District of KZN, South Africa?

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1.5 RATIONALE OF THE STUDY

Previous studies have widely been conducted on the different contributing factors to ART missed clinic appointments among adults. A few include studies conducted in the SSA (Angelo & Alemayehu, 2021; and Clement *et al.*, 2020), systematic reviews in SSA and South Africa (Gesesew, Ward, Woldemichael & Mwanri, 2017; Makhado & Mongale, 2019; and Heestermans *et al.,* 2016) and locally conducted studies (Azia, Mukumbang & Van Wyk, 2016; Arnesen, Moll & Shenoi, 2017; and Simelane, 2019). However, limited studies have been done within this specific context and region. This study needed to be conducted as it would shed light on what are the factors that contribute to missed clinic appointments among adults on ART within this region. Findings of this study will not only contribute to better management of ART appointments and adherence but will also contribute to the professional body of knowledge which is aimed at adding value to healthcare and healthcare practices.

1.5.1 Nursing practice

Nurses are the primary health care givers at the clinic level and thus address the health care provider aspect. Thus, the findings of this study could contribute to the effective rendering of HIV services that could have a positive influence on the clients' health behaviours, that is, compliance with clinic appointments and thus, adherence to ART for the promotion of optimal health.

1.5.2 Policy making, healthcare practices and staff training

This study will also contribute to policymakers, trainers, as well as ideal clinic measures to bring optimal nursing care and management to ensure better results in better compliance to ARV collection appointments in adults on ART, at the uThukela local clinics and district at large.

1.5.3 Patients

Through conducting the study, optimal service provision would be fostered and that could improve the client experience of attending the clinic appointments and ensure adherence to ART.

1.6 SUMMARY OF RESEARCH DESIGN AND METHODS

A comparative descriptive study using a cross-sectional survey was conducted. A comparative descriptive design is designed to describe variables and the differences between two or more groups to see if, and how, they differ, in describing a phenomenon (Brink *et al.*, 2018). This design is to take two or more groups as they naturally occur, compare their characteristics, and provide descriptive information about them (Gray *et al.*, 2017; Brink *et al.*, 2018). Cross-

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sectional studies are used to examine data at one point in time, where data are collected from different participants of a population only on one occasion, rather than collected from the same participants at several points in time (Brink *et al.*, 2018). Cross-sectional studies are commonly used when answering questions about the prevalence of a condition in terms of "How common is the outcome (disease or risk factor)" or "What risk factors are associated with these outcomes?" (Gray *et al.*, 2017; Brink *et al.*, 2018; Wang & Cheng, 2020). This research study sought to identify the factors that are associated with missed appointments among adults on ART in the uThukela District, KZN. Data were collected at a consultation room within the clinic where the participants normally collect their treatment. According to Grove, Burns and Gray (2013) descriptive quantitative research is conducted in natural settings that are uncontrolled. No conditions were changed during the process of data collection. A validated questionnaire, that was adopted from a similar study that had been conducted in Kenya by Clement, Akwee, Bitok and Kariuki (2020), was used to collect data. Permission to adopt the questionnaire was granted by the publishing institution, that is, Creative Commons (CC), according to the CC Attribution 4.0 licence (Creative Commons, 2022). The questionnaire was piloted on ten participants (that is 10% of the sample), who were not included in the main study. Following this, the questionnaire was amended to be more relevant to this population and it focused on determining the factors that are associated with missed ART appointments within this region. The group of persons that were of interest to this study were all the adults on ART who had missed their follow-up clinic appointments by 7-90 days and were registered at Watersmeet Clinic. The data collection process commenced on the 10$^{th\ of}$ July 2023 and concluded on the 11th of August 2023. Facility data from the clinic's TIER.Net system showed that 2862 clients were currently registered on ART, while 112 had missed their appointments and a further 89 of those who missed appointments met the inclusion criteria, which formed this study's population of adults who missed their appointments

Therefore, the sample size was 89 clients who had missed their appointments. Since this study used a non-probability convenience sampling which is prone to bias, the study doubled the sample size by sampling 89 more participants who had not missed their appointments (that is, who were adherent to appointments) to match the total number of those who had missed their appointments, making a total sample of 178. A total of 104 participants were successfully reached, presenting a response rate of 58.4% and a 100% completion rate.

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1.7 ETHICAL CONSIDERATIONS

The ethical considerations are articulated according to the Belmont report and three ethical principles should be considered in a study. These are beneficence, respect for human dignity and justice as cited by Polit and Beck (2021). The researcher adopted an existent questionnaire by Clement *et al.* (2020), that was previously utilised to conduct a similar study. Permission to adopt the questionnaire was granted by the publishing institution, after failed attempts to reach the authors; the permitting communication is attached as Annexure G.

The researcher obtained ethical clearance from the Healthcare Sciences Research Ethics Committee (protocol number: 72/2023) (Annexure I). The researcher abided by the principles throughout the study by firstly inviting, then informing and lastly asking the respondents to participate in the study. The researcher took into consideration the clients' preferences of whether the data collection could be conducted at the facility by obtaining informed consent. The researcher informed the potential respondents of the purpose, nature, data collection methods, and extent of the research prior to commencement. Further, the researcher explained to them the purpose of the study. The following principles guided the study:

1.7.1 Beneficence

Beneficence refers to minimising harm and maximising the benefits (Polit & Beck, 2021) in research. The benefit of the study would be that compliance with clinic appointments could be fostered through the study. In addition, the results gathered from the questionnaire could assist the clinic in developing recommendations that encourage services that are rendered by the facility staff, thus improving attendance to the clinic and ultimately adherence to ARVs. Furthermore, the researcher acknowledged that an individual's HIV status is highly confidential and personal, and some clients might have not disclosed their status to their families. Thus, the researcher treated the clients with the utmost respect and maintained confidentiality of their HIV status. In this research study, the researcher ensured that no participant was put in a situation where they may have been harmed because of their participation. No harm was envisaged from the study. However, in the case where respondents experienced discomfort from answering any question, they had the right to withdraw from the study. The researcher would have referred the adults to the psychologist at the clinic and even the social workers where it was indicated.

1.7.2 Respect for human dignity

This includes the right to self-determination and the right to full disclosure (Polit & Beck, 2021). This principle was maintained by respecting the right of the respondent to participate or not participate in the study. The respondents were not coerced to participate, and the full purpose

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was discussed according to the consent form. It was also made clear that no confidential information was required in the questionnaire provided for this study.

1.7.3 Privacy, confidentiality, and anonymity

The researcher ensured the anonymity of the respondents by assigning a code to each questionnaire. Therefore, no personal information was obtained from the clients. The researcher has also kept the informed consent and questionnaires safely in a locked cabinet, to ensure confidentiality of the respondents' information. Total privacy, confidentiality and anonymity of the respondents' identity and personal demographic information were maintained. The status of the respondents was kept with utmost confidentiality and was not shared with anybody. Lastly, all information and responses provided by the respondents were used solely for this study.

1.7.4 Voluntary participation

The researcher made it clear to the respondents that the research was only for academic purposes and that their participation was voluntary. Nobody was forced to participate as it was indicated within the informed consent form.

1.8 ORGANISATION OF THE STUDY

This dissertation is a compilation of five chapters that are structured as listed below.

CHAPTER 1: Overview of the study

This is the introductory chapter of the research study. The chapter has outlined the background of the study, problem statement, aim, objectives, research questions, the rationale of the study, a summary of the research design and methodology, ethical considerations, organisation of the study and conclusion.

CHAPTER 2: Literature review

The following chapter presents the findings of previous studies that were conducted on this topic. Herein, missed appointments from a Global, Sub-Saharan African and South African perspective are explored. Furthermore, socio-demographic-related, patient-related, healthcare-related and socio-cultural-related factors to missed clinic appointments that have been reported in previous studies are reviewed.

CHAPTER 3: Research design and method

Herein is the research methodology adopted for this study. This chapter outlines the research design, strategy, procedure, instrument of data collection and the method of analysing the data collected from the respondents.

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CHAPTER 4: Data presentation and analysis

This chapter provides details of the findings. The outline of the chapter follows themes that were identified in the study.

CHAPTER 5: Discussion of findings, conclusion, limitations and recommendations

The chapter discusses the study's findings. This is followed by the conclusion, limitations and recommendations of the study.

1.9 SUMMARY OF CHAPTER ONE

This chapter served to introduce and provide background information on the notion of HIV treatment and care according to the WHO and NDoH National guidelines as well as the goal for the appropriate uptake and adherence to ARV treatment by HIV-infected adults. On the contrary, the problem statement highlighted the gaps that have been identified in the treatment of HIV, more especially in missing clinic appointments for the collection of ARVs. The research methodology that was used in the study, ethical considerations, delimitation and study context, and organisation of the study were briefly outlined. A review of the existing body of knowledge is presented in the next chapter.

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CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

A review of literature that was conducted on the topic of interest assisted the researcher in understanding the existing body of knowledge. The existing studies enlightened the researcher on what studies have been conducted on the topic of missing ARV collection appointments, what these studies found, as well as the recommendations that have been presented to the healthcare systems. The researcher consulted various sources from the University of Pretoria (UP) library resources and scholarly articles from Science Direct, Scopus, Google Scholar, electronic books, and physical books. This chapter defines the concept of a literature review and presents literature factors that are associated with missed ARV collection appointments among adults in South Africa, the African region and across the globe.

2.2 LITERATURE REVIEW DEFINED

For any kind of study to be conducted, it is important for a literature review to be undertaken to understand what studies have previously been conducted on the topic as well as the findings of the studies. The findings of existing literature are then utilised to influence and shape the study for prospective research.

According to Brink *et al*. (2018) and Pilot and Beck (2021), a literature review involves searching, finding, reading, comprehending, and reaching conclusions about the published research and related theories as well as theoretical frameworks concerning the subject of the study. Furthermore, it is a critically and carefully written summary of the state of preceding or existing knowledge on the researched phenomena (Brink *et al*., 2018; Pilot & Beck, 2012). Undertaking a literature review, thus, capacitates the researcher in understanding the subject at hand more extensively, being informed of the research procedures and methods that have been used to investigate, as well as the appropriate instruments that are in place to collect valid data.

In an eBook on "*Doing a literature review*", Hart (2018), asserts that to know the implications of a development, one needs to know the intellectual context in which that development took place, which is then the whole aim of reviewing literature. Moreover, a good literature review

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does not include everything that has been found; it is selective, only presenting in discussion work that is relevant to the research itself, making it important to justify the inclusion and exclusion criteria (ibid).

This chapter, thus, delves into studies that have been conducted within the past 10 years on what factors are associated with missed appointments among adults on ARVs in rural South Africa, in broader Sub-Saharan Africa as well as globally. Moreover, socio-demographic-related, patient-related, health system–related, as well as social-cultural-related factors will be reviewed, specifically.

2.2.1 Search method

The search for the scientific evidence and reference lists of the articles was carried out electronically by using the Scopus database, EBSCOhost, Google scholar, and the UP library resources which include articles, reviews and electronic books. The literature search was conducted aiming to extract available knowledge on factors that have been found to be associated with missed clinic appointments in adults on ART and what has previously been recommended in this regard. The search of literature remained solely within the scope of this study and the databases provided the most relevant information as well as suggestions.

2.2.2 Research terms

The terms that were utilised during the literature search were abstracted from the scope of the study, which is related to the collection of ARV treatment and non-compliance to prescribed clinic appointments and carried out electronically using databases and scholarly articles. The key terms used for scientific and scholarly information were: ARV therapy in adults, missed ART clinic appointments, non-adherence to ART, factors influencing missed ARV appointments in adults, predictors of lost-to-follow-up from ARVs among adults, and determinants of adherence to ART.

2.2.3 Sources' years

Initially, the evidence was sought for the related information published between 2011 and 2020 to obtain data within the ten-year bracket. As the study progressed by year, the search for the most recent literature continued between 2016 and 2023. The journals, articles and electronic books utilised were dated between 2015 and 2021. The search was done using the English

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language. All published literature that was not documented in the English language and unrelated to gamification was excluded.

2.3 MISSED APPOINTMENTS ON A GLOBAL, SUB-SAHARAN AFRICAN AND SOUTH AFRICAN PERSPECTIVE

A study on the association between patient-reported barriers and HIV clinic appointment attendance was conducted in the United States and found that work and childcare were important patient-reported barriers associated with poor retention (Judd, Friedman, Schmitt, & Ridgway, 2022). Judd *et al.* (2022) explain that having children at home appeared to be an important barrier as patients who reported that childcare made it difficult to attend appointments were more likely to miss a clinic visit. Additionally, patients who were employed mostly worked in low-wage jobs with inflexible hours, which made it difficult for them to take time off work to attend to their healthcare. Another study conducted in England revealed that sub-optimal clinic attendance was associated with missing doses of ART, less belief in the necessity of ART and more concerns about taking ART (Howarth, Apea, Michie, Morris, Sachikonye, Mercer, Evans, Delpech, Sabin, & Burns, 2022). Howarth *et al.* (2022) further assert that the top reason that participants gave for ever missing their appointments at the HIV clinic was related to stigma and not wanting to think about being HIV positive. Moreover, on a deeper analysis, precarious immigration and housing were associated with sub-optimal attendance among men, and immigration status remained significantly associated with clinic attendance in multivariate analysis for men (along with age), says Howarth *et al.* (2022).

When it comes to SSA, studies conducted in Malawi, Kenya and Uganda found that factors influencing defaulting from ART care include patient-related and health system–related dynamics. According to Chirambo, Valeta, Banda-Kamanga and Nyondo-Mipando (2019), Kaara and Mutai (2017) and Vancampfort, Byansi, Ward and Mugisha (2021), individual barriers include forgetfulness, better perception of one's health, denial of an HIV-infected status, fear of disclosure of one's positive status, side effects and ART fatigue. In health, system dynamics include human resource factors and accessibility of services such as poor relationships with health workers, lack of patient-centredness and staff inadequacy (Chirambo, *et al.*, 2019; Kaara & Mutai, 2017; Vancampfort *et al.*, 2021). Factors affecting retention into ART care include psychological support, follow-up visits after a missed visit, supportive relationships and adequate information education and counselling after a positive diagnosis. On further analysis, patients with compromised immunity with repeated illnesses which

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interfered with clinic appointments missed their ART refill appointments more than those that were stable.

Thus, the above literature indicates what the different factors to the notion of missed appointments among adults on the ART programme are, on a local, SSA and global perspective. Although PLWHIV is on different receiving ends of the global ART programme, from first world countries right through to the third world, what is common is that they are similarly grouped as socio-demographic related, patient-related, healthcare-related or socio-cultural related factors. These factors are exclusively reviewed below.

2.4 SOCIO-DEMOGRAPHIC RELATED FACTORS

Socio-demographic is a term that is used to combine demographic and socio-economic factors that can be used to describe and classify individuals or groups in a population (Kebede *et al.,* 2021). Kebede *et al.* (2021) further assert that in social science, socio-demographic factors refer to people's characteristics including age, gender, education level, income, occupation, and location of residence, which can be used to understand patterns and trends in society. Socio-demographic factors can also be used to target specific groups for research or to understand how different groups may be affected by different social issues or policies.

A systematic review and meta-analysis of risk factors for LTFU among adults living with HIV in SSA by Kebede *et al.* (2021), analysed age, sex, place of residence, marital status, educational status, religion, family size, employment status, HIV disclosure status, partners' HIV status, and substance to assess their relationship with LTFU.

2.4.1 Age

The review revealed that concerning age, younger aged patients were more likely to be LTFU than older aged patients (Kebede *et al.*, 2021). A similar study conducted in Kenya found that younger patients have higher odds of LTFU than older patients (Wekesa *et al.*, 2020). Wekesa *et al.* (2020) further state that young patients tend to be less adherent to ART and clinic visits, and this could be attributed to stigma and discrimination.

The authors of another study conducted in America, on predictors and profiles of ART behaviours among young adults, state that the benefit of ART is directly dependent upon an individual's ability to adhere to the regimen, and consequently adhere to collecting that

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medication (Gross *et al.*, 2016). Thus, the factors that were found to relate to ART adherence behaviour among young adults included cognitive thought processes such as positive beliefs about the benefit of ART, self-efficacy, and motivational readiness, as well as social support (Gross *et al.*, 2016). Furthermore, pertaining to their HIV- status, young adults were found to be depressed, anxious, with suicidal ideation, which lead to decisional imbalance, less self-efficacy and decreased motivation, and substance abuse, accounting as significant attributes to decreased adherence to ART collection.

As stigma and discrimination, depression, anxiety, suicidal ideation, decisional imbalance, self-efficacy, decreased motivation, and substance abuse found in the account of younger patients being more at risk of being LTFU than older patients, authors have alluded that these challenges could be addressed through experiential sharing among peers, prompt disclosure, and patient education and counselling (Wekesa *et al.*, 2020). Additionally, other studies have evaluated novel interventions such as cell phone support, as well as utilising motivational interviewing techniques and financial incentives to increase ART adherence among younger-aged adults (Gross *et al.*, 2016).

2.4.2 Sex

Insofar as sex is concerned, systematic review studies have suggested that women are at a higher risk of LTFU than men (Kebede *et al.,* 2021), while others affirm that men are at a higher risk of LTFU than women (Wekesa *et al.*, 2020).

Studies conducted in Asia by Paudel and Baral (2015), and another conducted in Ethiopia by Gesesew *et al.* (2017), reported that as a consequence of factors such as disclosure being a sensitive issue; stigma and discrimination associated with HIV/AIDS and the multidimensional effects on women's health and well-being; internalised stigma; and women living with HIV/AIDS experiences of being rejected, shunned and treated differently by physicians, family and close friends, women are more disposed to the risk discontinuing from ART (Paudel & Baral, 2015; Gesesew *et al.,* 2017).

According to Paudel and Baral (2015), and Gesesew *et al*. (2017), the fear of disclosure has been a barrier in women living with HIV, as disclosure could potentially lead to abandonment and relationship termination, stigma and discrimination, emotional abuse, and even domestic violence. Fear surfaces also upon the reaction of in-laws and the impact of disclosure on their

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children. HIV-related stigma from family, society and healthcare providers which is known to be higher in females, was said to be a contributor to prohibiting women with HIV from seeking care. Furthermore, it was added that a lower literacy status in females than males poses a challenge that prevents women from optimising the benefit of HIV care (Paudel & Baral, 2015; Gesesew *et al.*, 2017).

Considering the aforementioned, authors have recommended that support groups be offered as an essential part of HIV/AIDS services and be advocated as an effective and useful intervention for adult women on ART (Paudel & Baral, 2015; Gesesew et al, 2017). Moreover, support groups offer a supportive environment for women with HIV to express their suppressed feelings in the company of women in the same situation. It also facilitates the sharing of strategies for securely disclosing HIV status, building a network of friends to socialise with and provides emotional support as a form of emotional and physical empowerment for women.

In contrast, men are considered at high risk of becoming LTFU as Arnesen, Moll and Shenoi (2017), in a study conducted in rural KZN, state that it may be due to the mobile nature of the population in rural areas. Employment opportunities are limited in this rural impoverished region and thus males of working age frequently travel long distances to work in other areas such as Johannesburg, Durban and other major cities for months at a time (Arnesen, Moll & Shenoi, 2017). Furthermore, if these patients did not request a formal transfer of care at their respective ART collection facility, they would be recorded as LTFU (Arnesen, Moll & Shenoi, 2017). Though some of these patients likely attended another clinic and continued ART there, others simply stopped ART while away from home.

Moreover, in SSA, men were said to have less health-seeking behaviour than women, as women tend to access healthcare facilities for women's health services, antenatal care and Preventing Mother to Child Transmission (PMTCT) services (Wekesa *et al.*, 2020). The high number of women in HIV clinics reflects the national HIV testing patterns which show that a greater proportion of men than women were unaware of their HIV infection [61.9 and 47.8%, respectively] (Wekesa *et al.*, 2020). As a result, men may present to HIV clinics with advanced HIV infection at diagnosis and thus, be at higher risk of LTFU and death (Wekesa *et al.*, 2020). In addition, men are said to uphold cultural and traditional beliefs, making it also possible that men fail to return to HIV clinics after HIV diagnosis and ART initiation, as they seek advice

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from traditional healers and traditional medicine better than they do 'Western' medical assistance.

To this, authors have recommended that HIV testing for men be improved through male-friendly strategies such as male-friendly clinics, family and partner testing, workplace testing, home testing, and couple testing initiatives (Wekesa *et al.*, 2020).

Kenyan HIV treatment guidelines recommend targeted interventions such as clinic visit schedules during initial enrolment may improve both retention in care and clinical outcomes for men (Kenya Ministry of Health, 2016). Less frequent clinic visits thereafter for both clinical assessment and medication pick-ups may also improve long-term follow-up.

2.4.3 Lack of money, unemployment and residing far from the health facility

Among the economic factors that interfere with the consistent collection of ARV treatment as prescribed were poverty and unemployment, lack of money for transport, lack of food and disability grants (Azia, Mukumbang & Van Wyk, 2016). It is further explained that patients may fail to take their ART because they are poor and unemployed; therefore, they cannot raise enough money to buy food and eat healthily before taking the medication. This was evident as patients were said to have expressed that they do not find collecting ART medication worth their while as it does not help their poor circumstances; collecting medication brings no improvement in their lives (Azia, Mukumbang & Van Wyk, 2016). It was reported that taxi fares to and from the ART facilities were unaffordable. Some patients complain that because the health facility is at a distance from their place of residence, they end up spending an unreasonable amount of money on travelling, and those who do not have enough transport fare end up resorting to walking long hours to get to the clinic. This has been another attribute of the increased number of missed appointments.

2.4.4 Marital / relationship status

Holding a single or divorced relationship status was associated with LTFU. Wekesa *et al.* in 2020, indicated that single, divorced and separated individuals were 4.3 times more likely to be LTFU to ARV treatment than individuals who are married or in a committed relationship. This could be due to single/divorced persons' non-disclosure to sexual partners of their HIV status hence a higher likelihood of default, and unstable social relations within the society, resulting in weaker social support systems for single or divorced patients (Wekesa *et al*.,

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2020). While this may be factual, other authors have found that being married or in a committed relationship is a high risk to ART LTFU. Paudel and Baral (2015) in a study, found that some individuals may fear losing their loved ones as a result of disclosing their HIV status, and thus, resort to keeping it a secret. Moreover, patients who are in a relationship with potentially abusive partners tend to avoid revealing their HIV status as it could be an 'invitation' to domestic violence.

Therefore, the above literature reveals that in socio-demographic related factors, younger aged patients were found to be more likely to be LTFU than older aged patients due to the greater effect of stigma and discrimination, individual self-efficacy, motivational readiness, as well as social support. Furthermore, other studies found the female gender is more likely to be LTFU than the male gender due to fear of status disclosure. Other studies found that the male gender was more prone to being lost in ART care due to firstly, the mobile nature of the population in rural areas, where males seek employment opportunities outside of the area and leave without seeking transfer-out letters and secondly, men have been found to have less health-seeking behaviour than women. Lack of money, unemployment and distance from the clinic have also contributed to clients not being able to honour their prescribed appointments as a result of not having transport fare and not having enough food to consume before taking the medication daily. Lastly, clients who were found to be married or in a committed relationship were more likely to be LTFU as a result of fear of relationship termination should their partner find out about their status.

2.5 PATIENT RELATED FACTORS

In a systematic review done across SSA, 24 countries attributed attending ART clinic appointments to 43 barriers and 30 facilitators (Croome, Aluwalia, Hughes & Abas, 2017). Croome *et.al*. (2017) categorised these barriers and facilitators into nine related themes, which are namely, financial, health provider, medication taking, interpersonal relationships, mental health and well-being, beliefs about HIV and treatment, beliefs about ART, medication collection, and lastly treatment-related factors. Furthermore, barriers and facilitators to attending ART clinic appointments included factors related to participants' physically taking their ART medication (e.g. unable to take their pills without adequate food or using reminders to remember to take their pills), factors that impacted participants' physical or mental health (e.g. feeling sick or feeling better after taking ART), factors related to participants' relationships with other people (e.g. non-disclosure of HIV status to others or social support), factors related to finance (e.g. lack of money for HIV care or free ART treatment), factors related to

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participants' health provider including all staff (e.g. experiencing negative treatment from clinic staff or having a good relationship with their health provider), beliefs around HIV and treatments for HIV (e.g. using traditional medicines or accepting own HIV status) and beliefs regarding ART (e.g. ART is harmful or ART is beneficial).

Factors related to collecting medication at the clinic (e.g. long waiting times or erratic drug supply) and treatment-related factors (e.g. side effects or pill burden) were only reported as barriers to ART adherence. The most frequently identified barriers across studies and methodologies were forgetting, lack of access to adequate food, stigma and discrimination, side effects and being outside the house or travelling. The most frequently identified facilitators across studies and methods were social support, using reminders, feeling better or healthier after taking ART, disclosing their HIV status and having a good relationship with a health provider. This review helps identify the range and frequency of factors that impact adhering to clinic appointments for patients within different regions of SSA (Croome *et.al,* 2017).

Moreover, another systematic review that sourced countries across the globe reported that there were more patient-related barriers than facilitators to adhering to ART clinic appointments (Kvarnström, Aleksi Westerholm, Airaksinen & Liira, 2021). Kvarnström *et al.* (2021) identified an extensive range of barriers and facilitators to medication collection and thus, classified the barriers as patient-specific, illness-specific, medication-related, healthcare and system-related, socio-cultural and logistical and financial factors. Furthermore, the facilitators identified information and knowledge of the disease and medication, individual and social motivation, adherence behaviour skills, healthcare and system-specific factors and logistical and financial factors (Kvarnström *et al.,* 2021). While factors were segregated as barriers or facilitators, some of these factors can act as barriers as well as facilitators, such as healthcare and system-related factors and logistical and financial factors, Kvarnström *et al.* (2021) further assert.

2.6 HEALTHCARE-RELATED FACTORS

Literature suggests that special nursing knowledge and skills have been suggested as prerequisites for taking care of patients with HIV (Boakyea & Mavhandu-Mudzusi, 2019). While studies on knowledge, attitudes and practices among health care workers involved in HIV and AIDS care have often revealed the lack of knowledge about HIV and AIDS, it further suggests that nurses' knowledge may compromise the quality of care and attitudes towards patients living with HIV/AIDS (Boakyea & Mavhandu-Mudzusi, 2019). This study by Boakyea and

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Mavhandu-Mudzusi (ibid) conducted on a group of nurses in Ghana, found that knowledge of HIV and AIDS was satisfactory but some still held erroneous beliefs and misconceptions about HIV transmission. Moreover, while a majority demonstrated favourable attitudes, a substantial number of nurses had fears of contracting the virus, which resulted in the display of negative attitudes by some (ibid). Additionally, studies by Heestermans *et al.* (2016) as well as Kheswa (2017) have been conducted and have shown that because a patient-healthcare-provider relationship is a critical component of adhering to ART clinic appointments, it can subsequently pose a threat to it if it is not a positive one, while it can also facilitate clinic attendance, if it is a positive relationship (Heestermans *et al.*, 2016; Kheswa, 2017). Kheswa (2017) accounted poor service and bad attitudes from nurses as one of the many factors that contribute to ART missed appointments among adults.

Other studies found that in the Western Cape, as well as Ethiopia, health system-related factors that were found to obstruct compliance to medication collection were poor treatment literacy, dissatisfaction with the quality of the ART services provided, lack of confidentiality in the way patients' HIV results were handled, long waiting times at ART clinics and the fear of picking up other infections from other patients in the outpatient department, as well as experiencing stock-outs of medication after having to wait at the clinic for long (Azia, Mukumbang & Van Wyk, 2016; Gesesew *et al.,* 2017).

In Malawi, the authors of a study related to LTFU deduced that high-volume facilities reported higher LTFU rates compared to low-volume facilities (Tweya *et al.,* 2018). One possible explanation for this may be that high patient-to-provider ratios limit individualised patient education, patient preparation before ART initiation, and ongoing counselling once individuals are on lifelong therapy. A reviewed study from Tanzania concurred that long waiting hours (>10 hours) in a hospital setting to access ART, reduced clinic attendance and consequently hindered adherence (Azia, Mukumbang & Van Wyk, 2016). Whereas authors evaluated that in the Western Cape, long waiting times were not a major concern but inadequate follow-ups and lack of confidence in health officials were reported as major concerns with the potential of interrupting patients' abilities to access ART treatment in future.

Lastly, models of HIV service delivery that reduce congestion at health facilities including community-based ART distribution systems, multi-month ART appointments, utilisation of

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other cadres and/or task shifting for adherence counselling and providing larger quantities of ARVs per visit for stable patients, have been suggested (Tweya *et al.,* 2018).

2.7 SOCIO-CULTURAL RELATED FACTORS

Socio-cultural is a term that is used in relation to social and cultural factors, which speaks of the common traditions, habits, patterns, and beliefs that are present within a population group (Ostiguy, 2017). Where socio-cultural factors come into play, Azia, Mukumbang and Van Wyk (2016) determine that, where patients are culturally and traditionally affiliated, especially in the rural setting, cultural beliefs will be a barrier to ART collection. The study revealed that patients tend to believe that concoctions from well-known and trusted traditional healers are as effective, if not more effective, as ARVs (Azia, Mukumbang & Van Wyk, 2016). Likewise, some communities believe that HIV is related to ancestral callings and would thus take up *'intwaso'* (ancestral initiation) instead of ARVs. Consequently, some patients are LTFU on ART.

Conclusively, patient-related barriers to clinic attendance were often found to be: patients being unable to take their pills without adequate food, medication side effects, patient forgetfulness, non-disclosure of HIV status, stigma and discrimination, lack of transport fare to the clinic, lack of adequate knowledge about ARVs, and using traditional medicines. While healthcare-related factors were: poor treatment literacy, dissatisfaction with the quality of the ART services provided, experiencing negative treatment from the staff at the clinic, lack of confidentiality in the way patients' HIV results were handled, long waiting times at ART clinics and the fear of picking up other infections from other patients in the outpatient department, as well as experiencing stock-outs of medication after having to wait for long hours at the clinic.

Based on the study findings from the above literature, authors have suggested patient involvement in appointment dates, more enhanced adherence counselling, addressing staff attitudes, implementing MMD and CCMDD to decongest facilities and reduce clinic waiting times, community-based outreach activities such as health talks to destigmatise HIV and support groups to assist with tackling the issue of patients missing clinic appointments.

2.8 CONCLUSION

Within this chapter was a review of existing literature on studies that have mostly been conducted in recent years. The researcher described the search method, search terms as well as the search years used in reviewing literature. The studies have declared that, although there are several barriers to treatment collection, these barriers can be classified into socio-

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demographic-related, patient-related, health system–related, as well as social-cultural-related factors. Lastly, previous recommendations from reviewed studies on how to tackle the issue of missed appointments were outlined. The subsequent chapter will present details on the research methodology that was adopted for this study.

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CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

The previous chapter outlined the review of literature related to factors associated with missed ART clinic appointments. This chapter discusses the methodology that was applied to determine the factors associated with missed appointments among adults on ARVs in this region. The outline of the chapter is as follows: research design, research paradigm, study setting, study population and sampling, data collection tool, recruitment of participants, pilot study, data collection, data analysis and management, and rigour.

3.2 RESEARCH DESIGN

According to Gray, Grove and Sutherland (2017), a research design is the researcher's choice of the best way to answer a research question, with respect to several considerations, including the number of subject groups, timing of data collection, and researcher intervention, if any. It is a blueprint for how a research study is conducted. Therefore, selecting a good research design should primarily be guided by whether the design does the best possible job of providing trustworthy answers to the research question (Polit & Beck, 2021). A comparative descriptive design using a cross-sectional survey was applied.

3.2.1 Quantitative Research Method

In quantitative research, the measurement of a phenomenon is in terms of quantity and the research reports what has happened and what is happening, without any control over variables (Patel & Patel, 2019) and can either be interventional or non-interventional (Gray *et al.*, 2017). According to Gray *et al.* (2017), interventional designs test the effect of an intervention, on a measured result and include both experimental and quasi-experimental designs. Whereas non-interventional designs count and measure characteristics of the phenomenon of interest and the study variables as they exist naturally, without intentional intervention (Gray *et al.*, 2017). Non-interventional research in this text is divided into descriptive designs and correlational designs. Therefore, the quantitative descriptive design was chosen as there was no intervention, and this study aimed to determine the factors that are associated with missed ART appointments among the adults who are on ARVs in the uThukela District, KZN. Figure 3.1 below is a representation of the algorithm for quantitative

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design types by Gray *et al.* (2017) that assisted the researcher in selecting the correct design for this study.

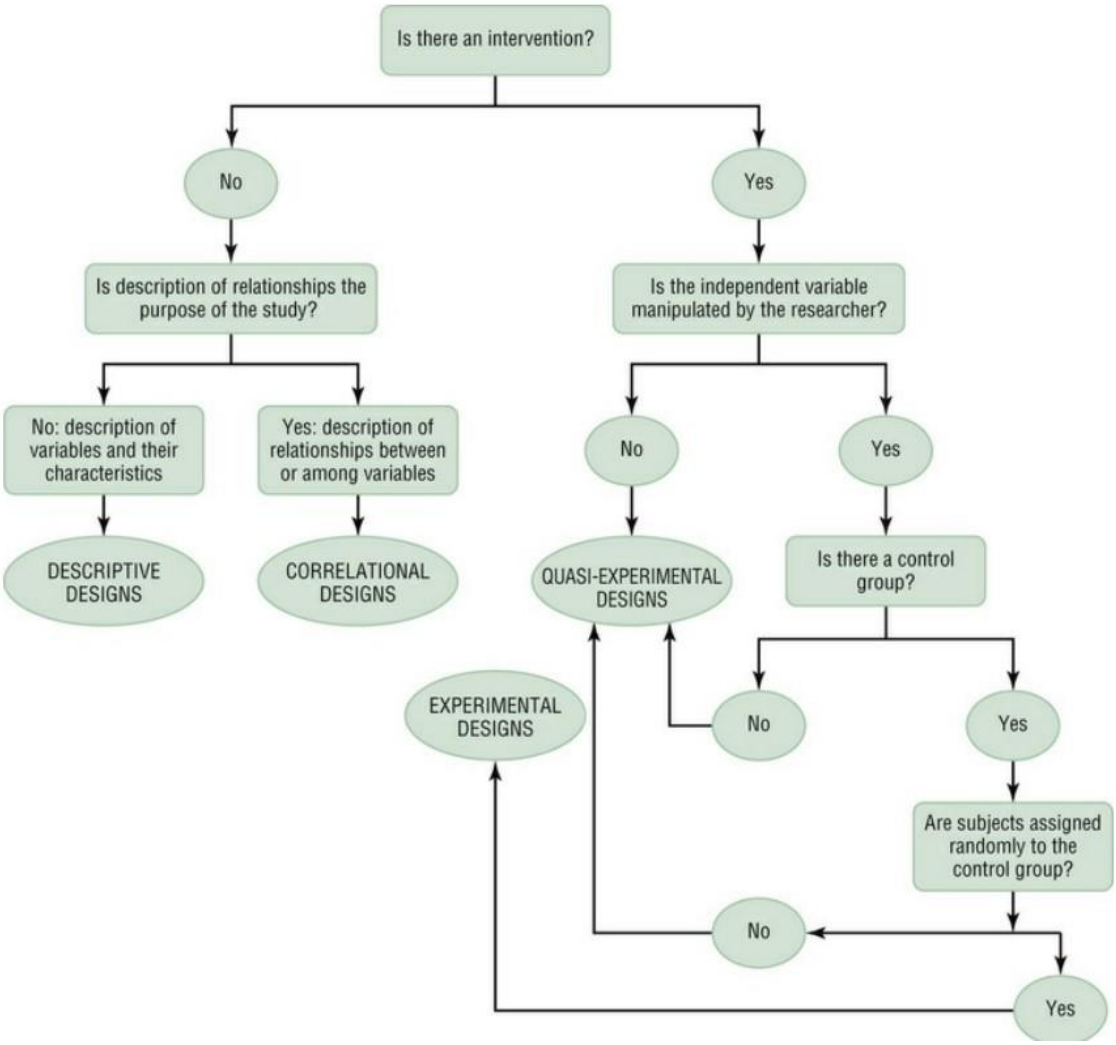

Figure 3.1: Algorithm for quantitative design types (Gray *et al.*, 2017)

3.2.2 Comparative descriptive design

Descriptive research design is a research method describing the characteristics of the population or phenomenon studied and primarily focuses on describing the nature of a demographic segment (Wang & Cheng, 2020). It answers the questions of "what is" or "to what degree" without focusing on "why" a particular phenomenon occurs, within one single subject group, sometimes called a cohort through the use of descriptive statistics (Gray *et al.*, 2017). In this design, data collection for all subjects occurs within the same time frame, over a span of minutes, hours, days, weeks, or months. Gray *et al*. (2017) explain that other descriptive designs, such as simple descriptive, comparative descriptive, cross-sectional

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descriptive and longitudinal descriptive, can best be understood as variations of the simple descriptive design. Figure 3.2 below, by Gray *et al.* (2017), describes the algorithm for quantitative descriptive designs.

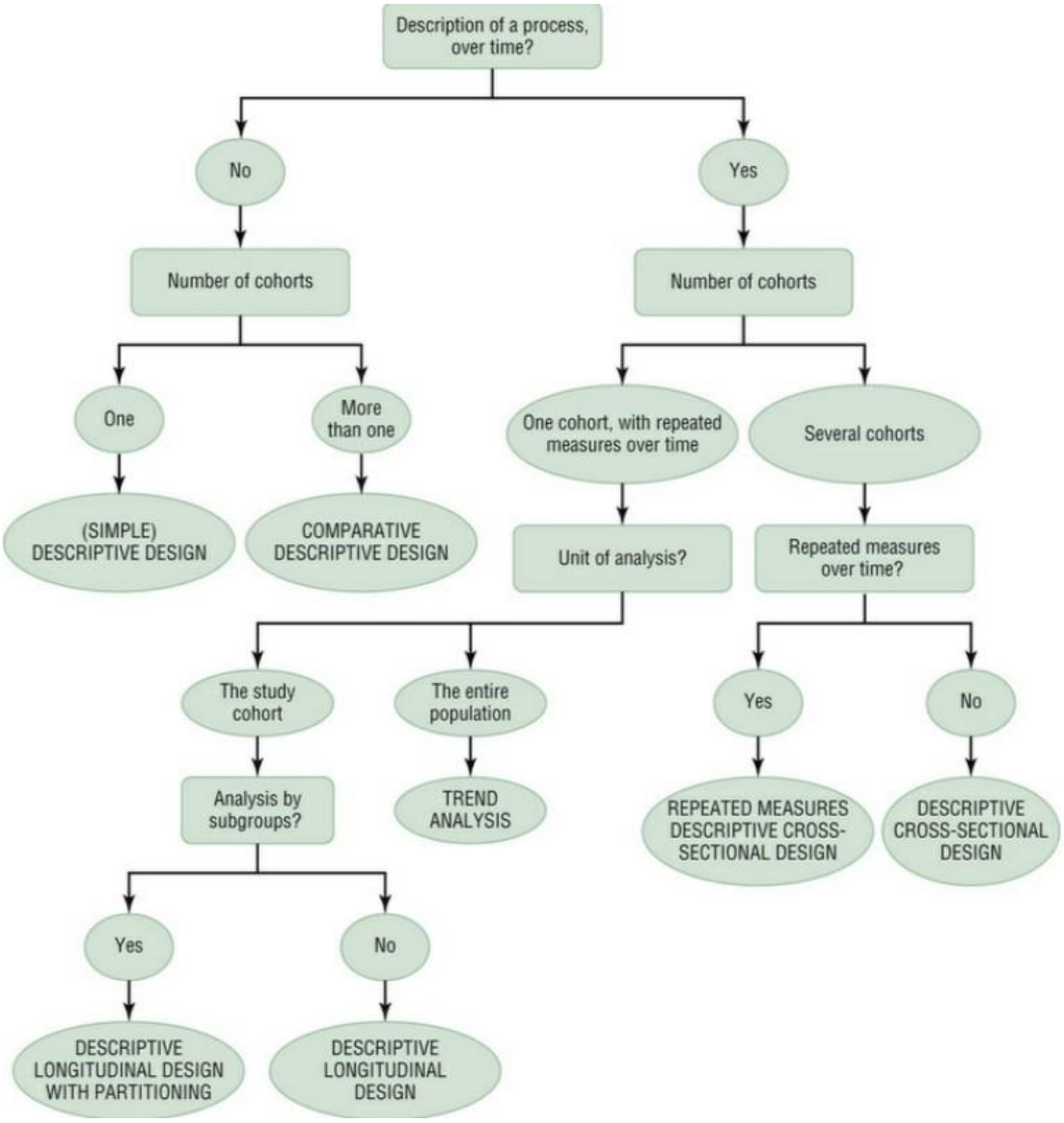

Figure 3.2: Algorithm for quantitative descriptive designs (Gray *et al.*, 2017)

Thus, a comparative descriptive design was applied to this study. A comparative descriptive design answers the questions of "what is" or "to what extent" (Gray *et al.*, 2017), and is designed to describe variables and the differences between two or more groups to see if, and how, they differ, in describing a phenomenon (Brink *et al.*, 2018). This design is to take two or more groups as they naturally occur, compare their characteristics, and provide descriptive

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information about them (Gray *et al.*, 2017; Brink *et al.*, 2018). A convenience sample is usually employed for this study, while descriptive and inferential statistics are used to compare and analyse the differences (Gray *et al.*, 2017; Brink *et al.*, 2018).

3.2.3 Cross-sectional study

Cross-sectional studies are used where data are collected from different participants of a population on only one occasion, rather than collected from the same participants at several points in time (Brink *et al.*, 2018). Cross-sectional studies are applied when exploring the prevalence of a condition in terms of "How common is the outcome (disease or risk factor)" or "What risk factors are associated with these outcomes?" (Gray *et al.*, 2017; Brink *et al.*, 2018; Wang & Cheng, 2020). It, therefore, allows the investigation of multiple variables such as gender, age, health conditions, access to services, and more at once.

Cross-sectional studies are relatively quick and inexpensive to conduct and are said to be the best way to determine the prevalence of an occurrence or condition and can study the associations between multiple exposures and outcomes (Gray *et al.*, 2017; Wang & Cheng, 2020). However, the disadvantages of this study design may be its inability to assess the incidence, study rare diseases, and make a causal inference (Wang & Cheng, 2020) and they are susceptible to sampling bias.

Cross-sectional studies have commonly been used in health science research when questioning the prevalence of missed appointments and non-adherence to treatment in PLWIH (Fonsah *et al.*, 2017; Gesesew *et al.,* 2017; Ammon *et al.*, 2018; Clement *et al.*, 2020; Angelo & Alemayehu, 2021,) to name a few. Similarly, this research study, with the use of quantitative descriptive design, aimed to identify the factors that are associated with missed appointments among adults on ART, in the uThukela District of KZN, South Africa. A survey questionnaire was used as the data collection tool.

3.3 RESEARCH PARADIGM

A paradigm is a set of philosophical assumptions on the social world that guide the approach of research. It provides a way of looking at natural phenomena from a worldview (Polit & Beck, 2021). This study selected a positivist paradigm which believes in empirical hypothesis testing, providing scientifically valid and reliable findings.

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3.3.1 Positivism

In positivism, the research follows a probabilistic model that is determined by previous research (Khaldi, 2017). It believes that human behaviours can be studied and predicted quantitatively and that behaviours can be explained using a scientific approach to research (Polit & Beck, 2021; Khaldi, 2017). Positivism is appropriate in determining the factors that are associated with missed appointments among adults on ART in the uThukela District of KZN, South Africa. The selected paradigm is based on the following major philosophical assumptions which are interrelated.

- **Ontology**

Ontology is concerned with the nature of reality which states that there is one defined reality and that it is fixed, measurable and observable (Polit & Beck, 2021; Khaldi, 2017). This study assumed that demographic, patient-related and healthcare-related factors are associated with ART missed appointments in adults and sought to determine and identify these factors.

- **Epistemology**

This refers to the current body of knowledge and what is known about the topic at hand (Polit & Beck, 2021), and states that genuine knowledge is objective and quantifiable, with the goal of testing and expanding theory (Khaldi, 2017). What is known is that approximately 4% of the adults who are on ART miss their appointments at the clinic, thus predicting poor adherence to ART which is associated with sub-optimal clinical outcomes. Demographic, patient-related, health systems and socio-cultural factors reportedly contribute to missed appointments among adults on ART in the uThukela District.

- **Methodology**

Methodological assumptions are procedures and rules that guide the researcher during an investigation or study (Polit & Beck, 2021). A comparative descriptive study within the quantitative approach was selected to determine the factors associated with missed appointments among participating adults on ART. A structured survey questionnaire was used to collect data. Descriptive statistics were utilised to summarise the results and inferential statistics compared the responses between the groups.

3.4 STUDY SETTING

Study setting refers to any selected physical location and conditions in which data will be collected for a study (Polit & Beck, 2021). This study was conducted within the Alfred Duma sub-district in uThukela District, KZN. Under the Alfred Duma Local Municipality, the

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Watersmeet area is a deep Zulu rural underdeveloped area where the community is still very culturally orientated. This area consists of six local clinics and one hospital, which are relatively close to reach for some clients. However, some may find access challenging due to the far distances they walk in order to access transportation. Within the Watersmeet area, there are basic infrastructures such as six government schools, a few spaza shops, a community hall and a church building. The community members within this area walk to collect water, herd livestock, and walk very long distances on gravel roads to find transport to access other services and infrastructure in town. Figure 3.1 below, is an overview of the map of KZN, zooming into the map of uThukela District (Cox, Oosthuizen & Dickens, 2015).

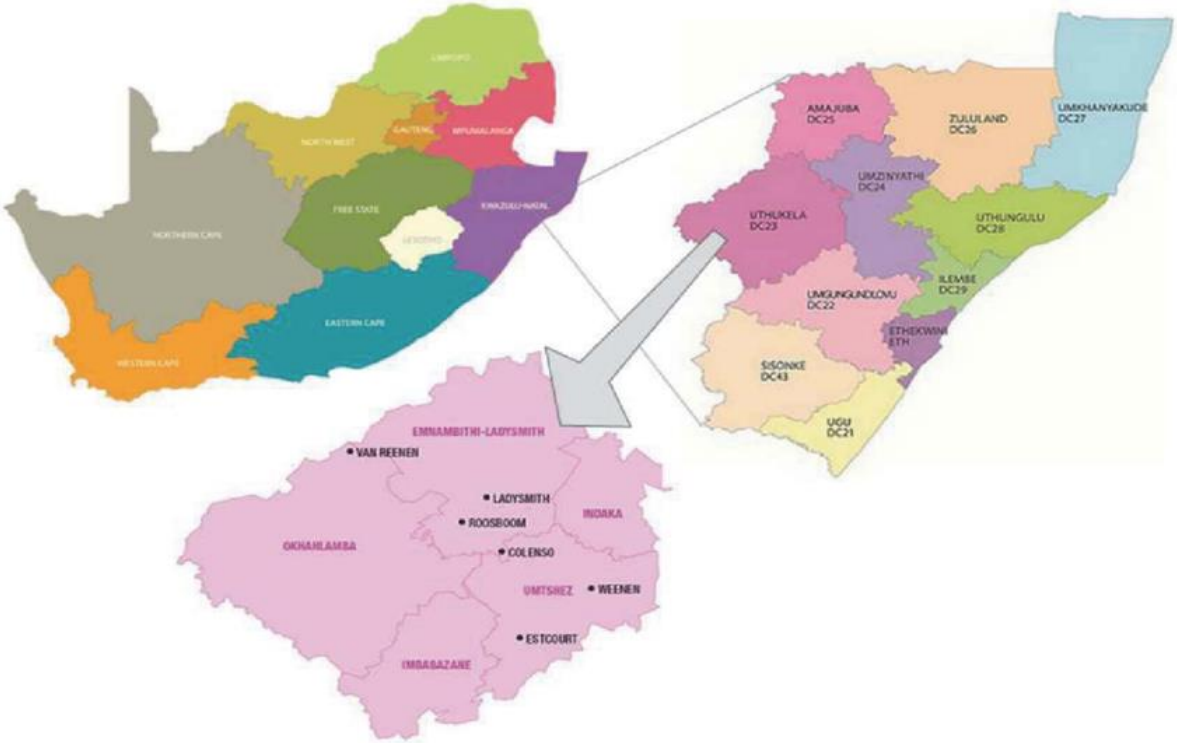

Figure 3.3: Overview of uThukela District location in KZN Province (Cox, Oosthuizen & Dickens, 2015)

The study was conducted at a PHC clinic within the sub-district. The clinic operates for 8 hours a day, from Monday to Friday. The clinic consists of seven professional nurses and four enrolled nurses who offer anti-retroviral services to the clients residing in the community. Other services include pre-natal, mother and child health, minor ailments, women's health, youth-friendly services and chronic conditions. The clinic was selected for this study because the records showed that it has the highest number of TROA patients who are receiving ART care services and patients who have missed their ART clinic appointments by 7 – 90 days in the

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sub-district. Table 3.1 reports the ART data for the PHC facilities within the Alfred Duma Local Municipality, as extracted from the monthly TIER.Net report.

Table 3.1: Alfred Duma Sub-District monthly TROA Report (TIER.Net, 2023)

Jul-23				
kz Alfred Duma		Missed Appointments		
Facility	TROA	7-28 days	29-89 days	Total
kz Driefontein clinic	1913	49	43	92
kz Kleinfontein clinic	1146	41	42	83
kz Matiwaneskop clin	1306	37	30	67
kz Watersmeet clinic	2940	81	31	112

The clinic has adapted to the system called CCMDD, where clients are enrolled upon collection of their treatment from the clinic. The statistics of those on the ART are described as the Total Remaining On ART (TROA). On the 10th of July 2023, the TROA of Watersmeet clinic stood at 2862 clients (TIER.Net, 2023). Within the 6 months that the study enquiry was made, on average, 112 adults had missed their appointment by 7 to 90 days, which was 3.9% of the total TROA population. According to the CDC (2019), in monitoring retention to care, which is in line with the third 90 of the 90-90-90 strategy, the goal is to have less than 1% of persons on TROA with missed appointments at any given facility.

3.5 STUDY POPULATION AND SAMPLING

3.5.1 Study population

Population refers to the study conducted with an entire set of individuals who have common characteristics (Polit & Beck, 2021). Furthermore, Grove *et al.* (2017) state that the target population is the entire set of individuals or elements who meet the sampling criteria. The group of persons that were of interest for this study were all the adults on ART that are registered at Watersmeet Clinic. Before the data collection process commenced, the TIER.Net system in the facility showed that 2862 adult clients were on ART at this facility. Furthermore, 112 adults of this population had missed their following clinic appointments by more than 7 to 90 days, for the reporting period of 1 July 2023. Out of the 112 who had missed their appointments, 89 met the inclusion criteria. An additional 89 of those who were compliant to appointments were sampled.

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3.5.2 Sampling size and sampling method

The minimum sampling size in quantitative research is at least 30 subjects for each study variable measured (Grove *et al.*, 2013). Therefore, the statisticians consider 30 subjects as the minimum number for data on a single variable to approach a normal distribution. According to Gray *et al.* (2017), the best method of determining sample size is a power analysis, but if information is not available to conduct a power analysis, this recommended 30 subjects per study variable may be used (ibid).

This study employed convenience sampling of the non-probability sampling method. In non-probability sampling, not all persons of the population have an opportunity to be included in the sample, as this method often includes the researcher selecting any subject who meets the inclusion criteria, and if they are willing to participate (Grove *et al.*, 2013). Convenience sampling is known to commonly be used in studies related to nursing and other health disciplines due to its accessibility to participants, practicality and cost-effectiveness (Grove *et al.*, 2017). Although convenience sampling is easy to implement, cost-effective and time-efficient, it has been considered a weak approach because of its limited opportunity to control biases (Grove, *et al.*, 2013). To this, the researcher ensured that the inclusion criteria were well-defined to limit biasness as well as improve the representativeness of the sample.

Therefore, the aimed sample for this study was all 89 clients who had missed their appointments and met the inclusion criteria. Since this study used a non-probability convenience sampling which is prone to bias, the study doubled the sample size by sampling 89 participants who had not missed their appointments, making a total sample of 178.

In this study, the researcher obtained the list of all those who missed their appointment date by greater than 7 to 90 days off from the TIER.Net missed appointment lists. The researcher then withdrew the files of the clients on the missed list, selected those who met the inclusion criteria for the study group and thereafter assigned numbers to those who arrived at the facility at random. The respondents in the study group were labelled as “Missed 02 – Missed 104” (even numbers only). The same selection process was used for the clients who did not miss their appointments according to the inclusion criteria, and the respondents in this group were labelled “Adherent 01 – Adherent 103” (odd numbers only). The sampling of the adherent group was because the study objective required a variable that specifies whether the appointments were missed or not. After all, the researcher wanted to identify whether the

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factors found to be associated with missed appointments were unique to the missed group so that valid conclusions could be drawn. A total of 104 participants were successfully reached during the study, that is, 52 of those who had missed their appointments and 52 of those who were compliant to their appointments.

The sampling method refers to the process of selecting a portion of the entire population to represent the entire population (Polit & Beck, 2021). In selecting a portion of the entire population, a study may have inclusion or exclusion sampling criteria (Grove *et al.*, 2013). According to Grove *et al*. (2013), inclusion sampling criteria are characteristics that a subject or person must have to be part of the target population, while exclusion sampling criteria are characteristics that can cause a person to be excluded from the target population.

3.5.3 Inclusion and exclusion criteria

Inclusion criteria for the research group

- Clients who were above the age of 18 years;
- Clients on ART who had missed their follow-up clinic appointment (on two or more consecutive accounts) by more than seven 7 to 90 days;
- A viral load that was above 50 copies on two or more consecutive accounts; and
- Clients who were without comorbidities, (not taking any other chronic medication other than ARVs).

Inclusion criteria for adherent group

- All clients who were above the age of 18 years;
- Clients who had not missed their clinic appointment in the last 6 months;
- Clients who had a viral load of less than 50 copies on two or more consecutive accounts; and
- Clients who were without comorbidities, (not taking any other chronic medication other than ARVs).

Exclusion criteria

- Any other client, not meeting the inclusion criteria;
- Clients who had been on ART for more than 12 months but had been enrolled in this facility TROA for less than 6 months; and
- Clients who were taking other chronic medication with ARVs.

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3.6 DATA COLLECTION TOOL

Data collection is a process of gathering information to address a research problem (Polit & Beck, 2021), and the data collection tool is the instrument that is used to collect information in the form of a survey questionnaire, interviews, or observation. A survey questionnaire was used to collect the data (Annexure B – Data collection instrument).

The researcher adopted a questionnaire that was previously used in Kenya to explore factors associated with non-adherence to ART (Clement *et al.*, 2020). Permission to use the questionnaire was sought from the publisher, that is, Creative Commons Publishing Institution, (see Annexure G – Approval to adopt data collection instrument) because the authors could not be traced. The questionnaire has three sections, namely: Section A – Patient Demographic Information (items 1 to 7); Section B – Patient-related factors to missed clinic appointments (items 8 to 26); Section C – Public health facility setting and health systems related factors to missed clinic appointments (items 27 to 46). The items from 8 to 46 were assessed on a Likert scale as follows: Strongly Agree – 1, Agree – 2, Not Sure – 3, Disagree – 4, Strongly Disagree – 5, Not Applicable – 6. The questionnaire was translated by a professional translator and published author into a language that the population understands, that is isiZulu (see Annexure K – Letter from the Translator).

The development of the adopted tool included soliciting expert opinions on content and construct validity. Comments solicited from experts were used to improve the research instrument before data collection commenced (Clement *et al.*, 2020). According to Clement *et al.* (2020), this questionnaire was availed to the supervisors together with a panel of experienced researchers who reviewed it to test its validity, and the comments that were received from the experts were incorporated in the final instrument revisions, that improved its validity. Clement *et al.* (2020) further report that the questionnaire was piloted on 30 clients who were not part of the research study and were from a different institution. The reliability scores for the three domains namely, patient-related factors, system-related factors, and socio-cultural factors were 0.95, 0.86 and 0.79 respectively.

3.7 RECRUITMENT OF PARTICIPANTS

Recruiting research participants involves identifying, accessing, and communicating with potential study participants who are representative of the target population (Gray *et al.*, 2017). Recruitment strategies differ, depending on the type of study, population, and setting. The researcher commenced with data collection after obtaining ethical approval from the

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Healthcare Sciences Research Ethics Committee (protocol number: 72/2023) (Annexure I – Ethics Research Committee Clearance letter), permission from the Alfred Duma Hospital's Chief Executive Officer (Annexure E – Letter of Approval CEO C-2), the clinic operations manager and the provincial department of health research committee (Annexure D – Letter of Approval Provincial Research Office). The clinic staff were already informed of the study, therefore, the researcher and field workers were allowed into the consultation room to provide awareness to the participants, briefly discuss consent, and request participation in the study after the consultation with the clinician was completed.

Once the participants agreed to partake in the study, they were directed to the room that was provided for the data collection process where consent was further discussed and signed by the participants. For the group who had missed their appointments, the sampled participants were traced and recalled back to the clinic for treatment according to the track and recall SOP, in collaboration with the facility's tracing team. The same recruitment process was followed once the participants presented to the clinic.

3.8 PILOT STUDY

A pilot study is defined as a 'small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study' (Polit & Beck, 2021). It is one of the important stages in a research project and is conducted to identify potential problem areas and deficiencies in the research instruments and protocol before implementation during the full study. The questionnaire was piloted on ten participants (that is, approximately 10% of the sample), within the study population after permission and consent were obtained from the respondents. The process was conducted as would the main study in terms of recruitment, inclusion criteria, exclusion criteria, and ethical applications. The data collected during the pilot study was analysed by the researcher and reviewed together with the questionnaire translator, who is a Doctoral candidate within a similar field of study and a published author.

The results of the pilot study helped to identify areas that required amendment. The amendments included questions that were a repetition in that they measured the same variable, clarified the questions that appeared to be unclear to the participants and lastly added "Not Applicable – 6" to the Likert scale. The amended questionnaire was finally used to collect data from a total of 104 participants. The participants of the pilot study were not part of the main research study, and the results of the pilot study were not included in the main research

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study. The amended questionnaire was finally used to collect data from a total of 104 participants.

3.9 DATA COLLECTION

Data collection took place within a period of 1 month (10 July – 11 August 2023). As a result of the tracing process for those clients who miss their appointments, 52 adults who had missed their clinic appointments and met the inclusion criteria were traced back to the facility for the study period and agreed to participate. To match the number of those who missed their appointments, 52 adults who did not miss their appointments were reached and participated in the study. A total of 104 questionnaires were distributed and 104 questionnaires were returned. All questionnaires were completed by hand on paper at the facility upon the respondents' clinic visit. Completion of the questionnaire took approximately 20 minutes for those who could read and write, and approximately 30 minutes for those who could not read or write. For those respondents who could not read nor write, the researcher hired field workers to assist with the reading out of questions to the participants of which the respondents would select the correct response. All questionnaires were completed in the presence of the researcher or the field workers, to clarify any possible issues to the respondents. An adherence counsellor was made available for those participants who required counselling where indicated.

The facility still observed the Covid-19 protocol as part of infection control measures. Thus, all Covid-19 regulations and protocols were followed upon distribution of questionnaires (wearing of the face mask which is still mandatory at the facility, social distancing, sanitising of hands and the pens used by respondents).

3.9.1 Response rate

In survey research, the response rate refers to the number of people who complete the survey versus the number of the total sample group whereas, the completion rate is the total number of surveys that were completed out of the total number of surveys that were distributed (Gray *et al.*, 2017). Thus, the response rate is calculated by the number of people who answered the survey / the number of people in the sample and the completion rate: surveys completed / surveys distributed. While the total study sample was 178, only 104 participants were reached for participation, and of those who were reached, all agreed to participate and fully responded to the questionnaire. Thus, the study had a response rate of 58.4% and a 100% completion rate.

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3.10 DATA ANALYSIS AND MANAGEMENT

The collected data were entered into a Microsoft Excel spreadsheet by the researcher and thereafter exported to Statistical Package for the Social Sciences (SPSS) for analysis by an expert statistician (Annexure J – Letter from a statistician). Descriptive and inferential statistics were used to analyse the data. Descriptive statistics refers to the measures used to synthesise the data in terms of averages and percentages (Polit & Beck, 2021). Descriptive statistics were used to summarise the patient demographic information and responses to the questionnaire.

Summary statistics such as mean, standard deviation and range are reported for quantitative variables. Frequency distribution tables and appropriate charts are displayed to show differences in the relative frequencies of variables. Chi-square and Mann-Whitney U tests were used to explore significant relationships between categorical variables. The level of significance was set at 0.05.

The questionnaires have been kept in a safe and locked cupboard within the researcher's residence for safekeeping, to be made available upon the institution's request. The questionnaires will be in safe keeping for a duration of 15 years post-completion of the research.

3.11 RIGOUR

3.11.1 Validity

Validity refers to the degree to which an instrument measures what is supposed to be measured (Brink *et al.*, 2018). As earlier indicated, the researcher used an already validated questionnaire. Thus, content, face and construct validity are discussed below.

- **Content validity** - Content validity refers to the degree to which an instrument has an appropriate sample of items for the construct being measured (Polit & Beck, 2021). The questionnaire was adopted from a similar study that was conducted in Kenya. In the present study, a pilot study was conducted. The findings of the pilot study were analysed to confirm the validity of the questionnaire and further resulted in the amendment of the questionnaire to better suit the sample and study in question. Moreover, a statistician was consulted to ensure that the contents of the questionnaire were statistically measurable and relevant in addressing the objectives and answering the research question.

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- **Face validity** - Face validity is about whether a test appears to measure what it is supposed to measure. This type of validity is concerned with whether a measure seems relevant and appropriate for what it is assessing on the surface (Polit & Beck, 2021). It is important because it is a sample's first step to measuring the overall validity of a test. Good face validity means that anyone who reviews the measure says that it seems to be measuring what it is supposed to. With poor face validity, someone reviewing the measure may be left confused about what is being measured and the method being used. The data collection instrument was reviewed by a colleague who is a Master's degree candidate within the same field of study, as well as a colleague who is a Doctoral candidate who was also used to translate the questionnaire into the isiZulu language. The researcher's supervisors, as well as the University of Pretoria (UP) ethics committee, had reviewed and approved the data collection tool.
- **Construct validity** - Construct validity is about how well a test measures the concept it was designed to evaluate, and it is crucial to establishing the overall validity of a method (Polit & Beck, 2021). Assessing construct validity is especially important when researching something that cannot be measured or observed directly, such as intelligence, self-confidence, or happiness. Multiple observable or measurable indicators are needed to measure those constructs. The researcher adopted a questionnaire that was used by Clement *et al.* (2020) in a study on factors associated with non-adherence to ART, in Kenya. According to Clement *et al.* (2020), to test the validity of the instrument that was used in the study, the questionnaire was availed to the author's supervisors together with a panel of experienced researchers of the study's institution to review the instruments. The comments from the experts were incorporated in the final instrument revisions to improve its validity.

3.11.2 Reliability

Reliability refers to the consistency with which the instrument measures the target attribute (Polit & Beck, 2021). In the previous study by Clement *et al.* (2020), Cronbach's alpha of the tool was as follows: patient-related factors (0.95), system-related factors (0.86) and socio-cultural factors (0.78). In the present study, the Cronbach's alpha coefficient was also calculated to assess the reliability of the questionnaire. The results showed a Cronbach's alpha of 0.73 for patient-related factors, and 0.73 for facility-related factors. According to Pilot and Beck (2021), these results are satisfactory and suggest that the items consistently assessed the same attributes related to factors that influence adherence to ARV treatment.

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3.11.3 Stability

The stability of an instrument refers to the extent to which similar scores are obtained on separate occasions (Polit & Beck, 2021). The researcher ensured this by distributing the questionnaire to different respondents on different days, however, under the same conditions and same setting. The questionnaire took approximately 20 minutes to complete for those respondents who could read and write and 30 minutes to complete for respondents who needed assistance with reading and writing. Stability was ensured using the correlation coefficient Cronbach alpha to determine factors associated with missed appointments among adults on ART that were under investigation. This was gathered from the SPSS software.

3.12 CONCLUSION

This chapter discussed the methodology that was applied to determine the factors associated with missed appointments among adults on ARVs in this region. In describing how this study was conducted, the research design, research paradigm, study setting, study population and sampling, data collection tool, recruitment of participants, pilot study, data collection, data analysis and management and rigour were explained fully. Chapter four will present the results of the study.

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CHAPTER 4

PRESENTATION OF RESULTS

4.1 INTRODUCTION

Following the research design and method explained in Chapter Three, this chapter presents the results of the study. The study aimed to determine the factors associated with missed clinic appointments among adults on Anti-Retroviral Therapy in the uThukela District of KwaZulu-Natal, South Africa.

Descriptive analysis was used to summarise the demographic profile and responses to the questionnaire. Inferential statistics, Mann-Whitney and Chi-square tests were used to explore associations between various factors and missed clinic appointments among adults on ARVs. The level of significance was set at 0.05. The results of the study will be presented as follows: demographic profile of the respondents, patient-related factors, health systems-related factors, and the conclusion.

4.2 SECTION A: DEMOGRAPHIC CHARACTERISTICS

4.2.1 Demographic profile of participants

Section A comprised Questions 1 to 7 that elicited the demographic profile of the respondents. Most participants were females and aged below 50 years. A summary of the demographic profile of the respondents is presented in Table 4.1 below.

Table 4.1: Demographic profile of participants

Demographic factor	Category	Frequency	Percentage
Age	18-35	45	43%
	36-50	45	43%
	50+	14	14%
Gender	Female	63	61%
	Male	41	39%
Education level	No education	1	1%
	Primary education	28	27%
	Secondary education	67	64%
	Tertiary education	8	8%
Employment status	Unemployed	60	58%
	Part-time	12	12%
	Full-time	8	8%
	Self-employed	24	23%
If employed, ability to get time off	Yes	13	12%
	No	30	29%
	N/A	61	59%
Years on ARV treatment	1-2	14	13%

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	3-5	28	27%
	6-10	35	34%
	10+	27	26%
Relationship status	Single	23	22%
	In a relationship	55	53%
	In casual relationships	15	14%
	Living together	5	5%
	Married	6	6%
HIV status disclosure	Yes	88	85%
	No	16	15%

Pertaining to the demographic profile of the participants, the results revealed that the overall (n=45, 43%) participants were aged 18-35, 43% (n=45) were 36-50, and only n=14 (14%) were over 50 years (Table 4.1). The gender segregation among participants revealed that 61% (n=63) fell within the female gender and 39% (n=41) were of the male gender.

Table 4.1 above shows that most of the participants (n=67, 64%) had a secondary level of education, 27% (n=28) had primary education, 8% (n=8) had tertiary education, and only 1% (n=1) had no formal education.

While the overall majority of respondents were unemployed (n=60, 58%), the latter fell within the 42% (n=44) who were employed (i.e. full-time n=8, part-time n=12 and self-employed n=24). Moreover, among the employed subset, 70% (n=30) of the respondents reported that they were unable to get time off work to attend their clinic appointments, while only 30% were able to get the necessary time off work (Table 4.1).

In total, Table 4.1 above illustrates that n=14 (13%) had been on ARVs for 1 to 2 years, n=28 (27%) for 3 to 5 years, n=35 (34%) for 6 to 10 years, and n=27 (26%) for more than a decade.

On the aggregate, 53% (n=55) of the participants reported being in a relationship, while 22% (n=23) identified as single, 14% (n=15) reported being involved in casual relationships, 6%(n=6) were married, and 5% (n=5) cohabited, as depicted in Table 4.1 above.

Among the total participants, 85% (n=88) had chosen to share their HIV status with their families or partners, while the remaining 15% (n=16) had not done so.

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4.2.2 Relationship between demographic profile and missed appointments

Table 4.2 below presents the results of the Chi-square test that was performed on the demographic factors. The highlighted p-values indicate a statistical significance of less than 5% (p-value ≤ 0.05).

Table 4.2: Demographic factors associated with missed appointments

Demographic factor	p-value	Interpretation of association with missing appointments
Age group	0.174	Not associated
Gender	0.009	Associated
Highest education level	0.531	Not associated
Employment status	0.007	Associated
Years on ARVs	0.186	Not associated
Relationship status	0.334	Not associated
HIV status disclosure	0.030	Associated

Gender segregation among participants

Most participants who failed to honour their scheduled appointments were males (n=27, 52%), while the remaining (n=25, 48%) were females. In contrast, within the adherent group, the majority comprised females, accounting for 73% (n=38), while males constituted 27% (n=14).

Table 4.3: Gender segregation of participants

Group |Gender	Female	Male	Total	Chi-square p-value
Missed group	25 (48%)	27 (52%)	52 (100%)	0.009
Adherent group	38 (73%)	14 (27%)	52 (100%)	
Total	63 (61%)	41 (39%)	104 (100%)	

Based on the data results presented in Table 4.3 above, males are more likely to miss their treatment appointments than females as indicated by a p-value less than 0.05 (0.009).

Employment status of the participants and the ability to get time off, if employed

The majority of respondents were unemployed (n=60, 58%), while the latter fell within the 42% (n=44) who had a form of employment (i.e., full-time n=8, part-time n=12 and self-employed (n=24). Most of the participants who honoured their scheduled treatment appointments were unemployed (n=38, 73%). Conversely, the majority, 58% (n=30), of participants who did not honour their appointments were employed (full-time, part-time, and self-employed). As

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presented in Table 4.4 below, the Chi-square test results showed a statistically significant association between employment status and missing appointments.

Table 4.4: Employment status of participants

Group|Employment status	Unemployed	Part-time	Full-time	Self-employed	Total	Chi-square p-value
Missed group	22 (42%)	10(19%)	4 (8%)	16 (31%)	52(100%)	0.007
Adherent group	38 (73%)	2(4%)	4 (8%)	8 (15%)	52(100%)	
Total	60 (58%)	12(12%)	8 (8%)	24 (23%)	104(100%)	

The results show that unemployed individuals tend to honour their treatment appointments better than those who have a form of employment.

Thus, these results confirm that being employed is an associated factor with missed clinic appointments due to the respondents' inability to get time off from work. Table 4.5 below illustrates that the majority (n=30, 70%) of the participants were unable to get time off from work to attend their clinic appointments, while 30% (n=13) were able to successfully arrange for such leave.

Table 4.5: Participants' ability to get time off, if employed

Group|Time off from work	Yes	No	Total
Missed group	3 (10%)	27 (90%)	30 (100%)
Adherent group	10 (77%)	3 (23%)	13 (100%)
Total	13 (30%)	30 (70%)	43 (100%)

HIV status disclosure

In the last question under the patient demographic section, the respondents were given the option to select whether they have disclosed their HIV status to their loved ones or not, by simply selecting a 'Yes' or 'No' in Question 7. Table 4.5 describes the findings below.

Table 4.6: Participants' HIV Status Disclosure

Group|Status disclosure	Yes	No	Total	Chi-square p-value
Missed group	40 (77%)	12 (23%)	52 (100%)	
Adherent group	48 (92%)	4 (8%)	52 (100%)	0.030

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Total	88 (85%)	16 (15%)	104 (100%)

Among the patients included in the sample, 85% (n=88) had chosen to share their HIV status with their families or partners, while the remaining 15% (n=16) had not done so (Table 4.6). In the adherent group, a substantial proportion of the participants, n=48 (92%) had disclosed their HIV status to their loved ones, whereas in the missed group, this number was slightly lower, n=40, 77%. It is thus apparent that individuals who do not disclose their HIV status to their family or partners are more prone to missing their prescribed clinic appointments than those who are open about their HIV status.

4.2.3 Association between demographic characteristics with patient-related and healthcare-related factors

The following analysis focuses solely on factors that demonstrate significant associations with demographic characteristics, as determined by the Chi-square test of independence. In cases where more than 20% of the cells had expected counts below 5, a Likelihood test was employed. Additionally, for 2x2 contingency tables and smaller sample sizes, a Fisher's exact test was utilised.

a) Gender

The results below show the factors that are associated with gender.

Table 4.7: Comparison of gender and use of traditional medicine

		Gender			
		Female	Male	Total	P-value
Have you used traditional medicine before?	Agree	24	27	51	0,004
	Disagree	39	13	52	
Total		63	40	103	

With regards to gender, only 38% (n= 24) of the female participants reported prior use of traditional medicine, whereas a higher proportion, 68% (n= 27), of male participants acknowledged previous use of traditional medicine (Table 4.7 above). The Chi-square test results affirm a significant association (p-value = 0.004) between the use of traditional medicine and gender. Males are more likely to use traditional medicine compared to females.

b) Employment status

The results below show the factors that are associated with employment status.

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Table 4.8: Comparison of employment status and the use of traditional medicine

		Employment status		Total	P-value
		Employed	Unemployed		
Have you used traditional medicines before?	Agree	28	23	51	0,007
	Disagree	15	37	52	
Total		43	60	103	

Table 4.8 illustrates that the majority (65%, n=28) of the unemployed participants indicated previously using traditional medicine as opposed to 38% (n=23) of the employed. There is a significant association between the use of traditional medicine and employment status.

Table 4.9: Comparison of employment status and the lack of transport fare to the clinic

		Employment status		Total	P-value
		Employed	Unemployed		
Have you had a lack of transport fare to the clinic?	Agree	5	17	22	0,036
	Disagree	39	43	82	
Total		44	60	104	

As shown in Table 4.9, most participants, both employed and unemployed (79%, n=82), did not experience problems with transport fare to the clinic. However, 21% (n=22) of participants encountered this problem, with the majority of this group being unemployed. Specifically, 28% (n=17) of the unemployed participants reported lacking transport fare, compared to 11% (n=5) of the employed participants. The Chi-square test indicated a significant association between employment status and the issue of lacking transport fare to the clinic.

c) Status disclosure

The results below show the factors that are associated with HIV status disclosure.

Table 4.10: Comparison between status disclosure and feeling stigmatised, discriminated or isolated by loved ones

		Have you disclosed your status to your partner(s) or family?		Total	P-value
		Yes	No		
Have you ever felt stigmatised, discriminated or isolated by your loved ones because of your HIV status?	Agree	22	9	31	0,018
	Disagree	66	7	73	
Total		88	16	104	

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A significant majority of participants, 85% (n=88), disclosed their HIV status to their partner(s) or family. Among those who disclosed, 25% (n=22) experienced feelings of stigmatisation, discrimination, or isolation from their loved ones, compared to 56% (n=66) of those who did not disclose their status. Overall, 30% (n=31) of participants reported experiencing these negative feelings, while the remaining 70% (n=73) did not. It seems that individuals who feel stigmatised are often those who have not disclosed their HIV status. The Fisher's Exact Test results indicate a significant association between HIV status disclosure and the occurrence of stigmatisation, discrimination, or isolation by loved ones.

Table 4:11: Comparison between status disclosure and feelings of stigma, discrimination or isolation contributing to missing appointments

		Have you disclosed your status to your partner(s) or family?			
		Yes	No	Total	P-value
Has the stigma, discrimination or isolation ever contributed to you not going to the clinic on your clinic date?	Agree	11	8	19	<0,001
	Disagree	45	2	47	
Total		56	10	66	

A minority, 29% (n=19) of the participants, indicated that stigma, discrimination, or isolation contributed to them missing their clinic appointments. Of those who disclosed their status, 20% (n=11) missed appointments due to stigma, discrimination, or isolation, in contrast to 80% (n=8) among those who did not disclose their status. The Fisher's Exact Test results suggest a dependence between missing appointments due to feelings of stigmatisation, discrimination, or isolation and the act of disclosing one's HIV status.

4.3 SECTION B: PATIENT-RELATED FACTORS TO MISSED CLINIC APPOINTMENTS

This section presents patient-related factors that contributed to missed appointments. Section B consisted of Questions 8 to 27 inclusively.

A Mann-Whitney test was applied to each factor, to assess the association of the factor to missed appointments. The factors with a p-value less than 0,05 were associated with honouring of clinic appointments while no statistically significant differences were observed

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between the two groups concerning the factors with p-values greater than 0,05. The results are presented in Table 4.12 below and will further analyse the results of those factors that have been highlighted with a statistical significance of 5% (p-value ≤ 0.05).

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Table 4.12: Patient-related factors to missed clinic appointments

Patient-related factors		Likert scale					Mann-Whitney U test				p-value
		Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Adherent N	Adherent Mean	Missed N	Missed Mean	
If you have disclosed to your partner(s) or family, does it contribute to you not going to the clinic?	Freq	2	2	0	36	49	49	46.84	40	42.75	0.397
	%	2.2	2.2	0.0	40.4	55.1					
If you have not disclosed to your partner(s) or family, does non-disclosure contribute to you not going to the clinic?	Freq	3	7	0	4	1	3	11.50	12	7.13	0,136
	%	20.0	46.7	0.0	26.7	6.7					
Have you ever felt stigmatised, discriminated or isolated by your loved ones because of your HIV status?	Freq	22	9	0	40	33	52	55.16	52	49.84	0,343
	%	21.2	8.7	0.0	38.5	31.7					
Has the stigma, discrimination or isolation ever contributed to you not going to the clinic on your clinic date?	Freq	13	6	1	26	21	31	42.37	36	26.79	<0.001
	%	19.4	9.0	1.5	38.8	31.3					
Do you find this clinic convenient for HIV care needs/services?	Freq	44	52	0	4	4	52	53.50	52	51.50	0.705
	%	42.3	50.0	0.0	3.8	3.8					
Are you satisfied with the staff in the clinic?	Freq	52	47	2	1	2	52	50.29	52	54.71	0.398
	%	50.0	45.2	1.9	1.0	1.9					
Has the lack of proper nutrition and enough food contributed to you not returning to the clinic to collect your ARVs?	Freq	4	12	2	56	6	38	47.11	42	34.52	0.003
	%	5.0	15.0	2.5	70.0	7.5					
Have you ever experienced side effects from taking ARVs?	Freq	6	13	0	56	29	52	57.08	52	47.92	0.088
	%	5.8	12.5	0.0	53.8	27.9					
Have the side effects of the drugs contributed to you not returning to the clinic to collect your ARVs?	Freq	4	9	0	49	13	36	43.17	39	33.23	0.020
	%	5.3	12.0	0.0	65.3	17.3					
Have you ever been mishandled or mistreated by the staff at the clinic?	Freq	5	4	2	57	36	52	59.83	52	45.17	0.005
	%	4.8	3.8	1.9	54.8	34.6					

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Has mishandling by the clinic staff contributed to you not returning to the clinic to collect your ARVs?	**Freq**	4	3	1	53	7	27	39.35	41	31.30	0.023
	%	5.9	4.4	1.5	77.9	10.3					
Do you feel you have received enough counselling regarding your ARVs?	**Freq**	51	42	8	2	1	52	47.75	52	57.25	0.075
	%	49.0	40.4	7.7	1.9	1.0					
Has the lack of enough counselling regarding your ARVs ever contributed to you not returning to the clinic to collect your ARVs?	**Freq**	2	7	3	50	23	33	49.67	52	38.77	0.024
	%	2.4	8.2	3.5	58.8	27.1					
Have you used traditional medicines before?	**Freq**	22	29	1	23	29	52	58.68	52	46.32	0.031
	%	21.2	27.9	1.0	22.1	27.9					
Have you ever opted for traditional medicine over ARVs?	**Freq**	3	9	0	36	18	29	39.19	37	29.04	0.018
	%	4.5	13.6	0	54.5	27.3					
Have you had the lack of transport to the clinic?	**Freq**	11	8	0	40	45	52	61.16	52	43.84	0.002
	%	10.6	7.7	0.0	38.5	43.3					
Has the lack of transport to the clinic ever contributed to you not collecting your ARVs on your clinic date?	**Freq**	7	10	0	6	39	25	35.98	37	28.47	0.063
	%	11.3	16.1	0.0	9.7	62.9					
Have you had a lack of transport fare to the clinic?	**Freq**	13	9	0	41	41	52	61.08	52	43.92	0.002
	%	12.5	8.7	0.0	39.4	39.4					
Has the lack of transport fare to the clinic ever contributed to you not collecting your ARVs on your clinic date?	**Freq**	8	9	0	7	38	24	35.25	38	29.13	0.137
	%	12.9	14.5	0.0	11.3	61.3					

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STIGMATISATION, DISCRIMINATION OR ISOLATION, AND ITS CONTRIBUTION TO MISSED APPOINTMENTS

Twenty-eight per cent (28%, n=19) of the participants reported that experiencing stigma, discrimination, or isolation contributed to their decision not to go to the clinic on their scheduled clinic dates (Table 4.12).

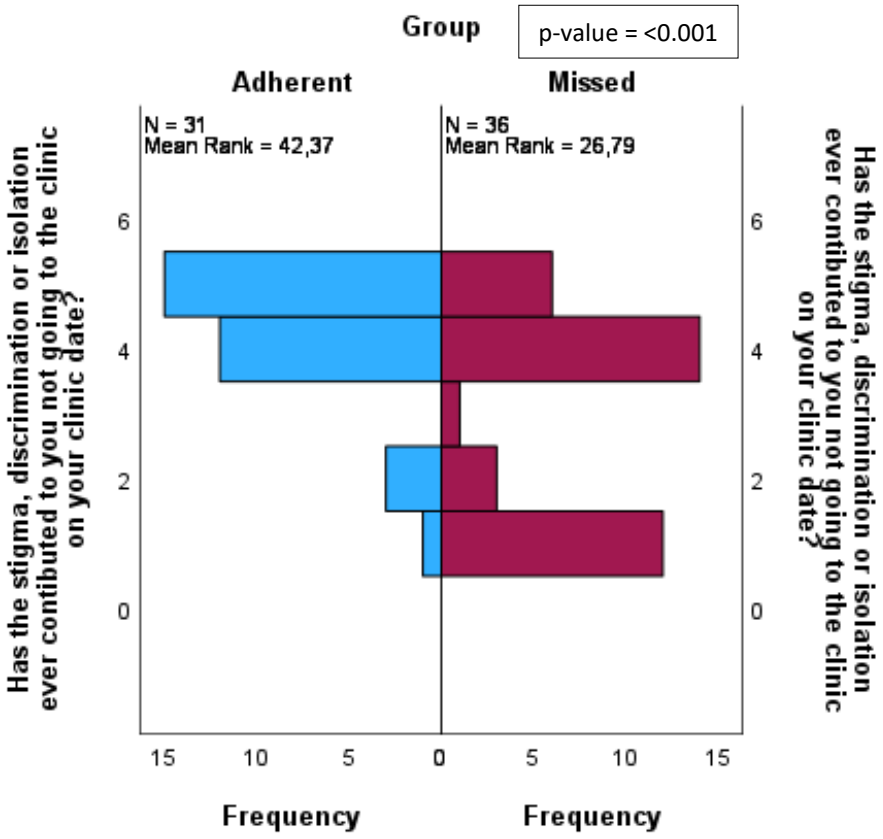

Figure 4.1: Relationship between stigma, discrimination or isolation and clinic attendance

When examining the impact of stigmatisation, discrimination, and isolation on missed clinic appointments, in Figure 4.1 above, it was observed that participants in the missed group reported a higher frequency of missing appointments for these reasons compared to those in the adherent group. The difference between the two groups is statistically significant based on the Mann-Whitney test, with the p-value= <0.001, indicating that stigmatisation, discrimination, and isolation are significantly associated with missed appointments. Interesting to note, however, is that this effect was experienced more by those who are adherent to clinic appointments.

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FOOD SECURITY AND ITS CONTRIBUTION TO MISSED CLINIC APPOINTMENTS

Question 14 raised the question of food security and whether or not it has contributed to missed ARV collection appointments. The results revealed that only 20% (n=16) of participants agreed that the lack of proper nutrition and enough food contributed to them not returning to the clinic to collect their ARVs.

The Mann-Whitney test results in Figure 4.2 below, indicate that the deficiency in proper nutrition and sufficient food has contributed to missed appointments, particularly among participants in the missed group, as reported by a lower mean rank (indicating agreement with the statement) in the missed group rather than the adherent group. The significant association between missed appointments and lack of proper nutrition and enough food is highlighted by a p-value less than 0.05 (p-value= 0.003).

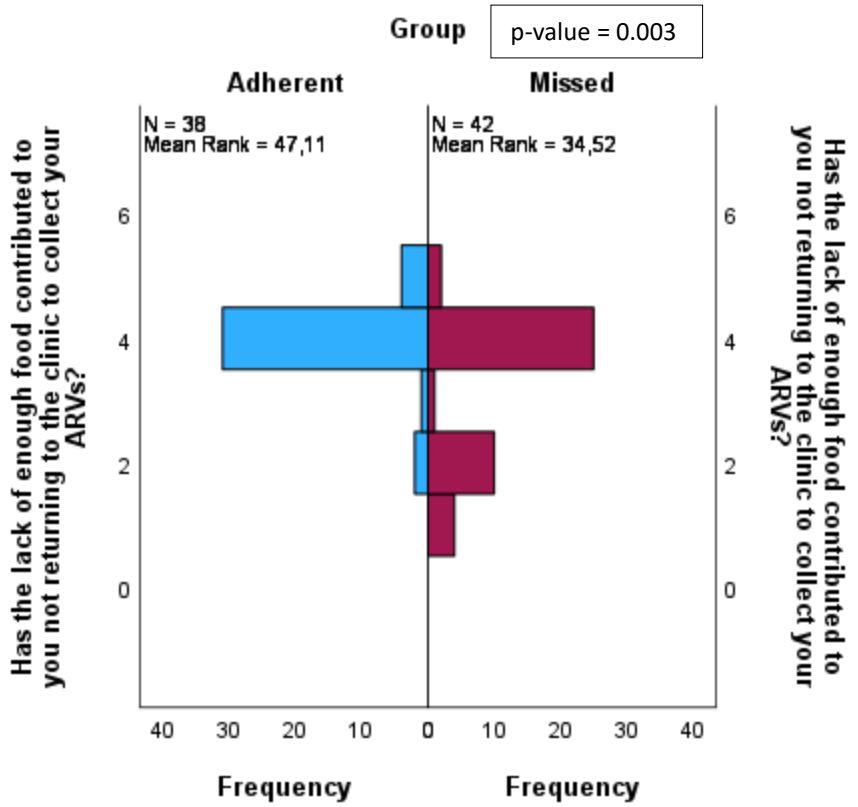

Figure 4.2: Relationship between the lack of proper nutrition and enough food and clinic attendance

SIDE EFFECTS AND THEIR CONTRIBUTION TO MISSED CLINIC APPOINTMENTS

As a sub-question to Question 15, this question sought to determine whether or not the experienced side effects of ARVs had contributed to the participants not then returning to the

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clinic to collect their ARVs. Data revealed that, of those participants who reported to have experienced side effects, only 17% (n=13) (Table 4.12), indicated that side effects contributed to them missing their appointments.

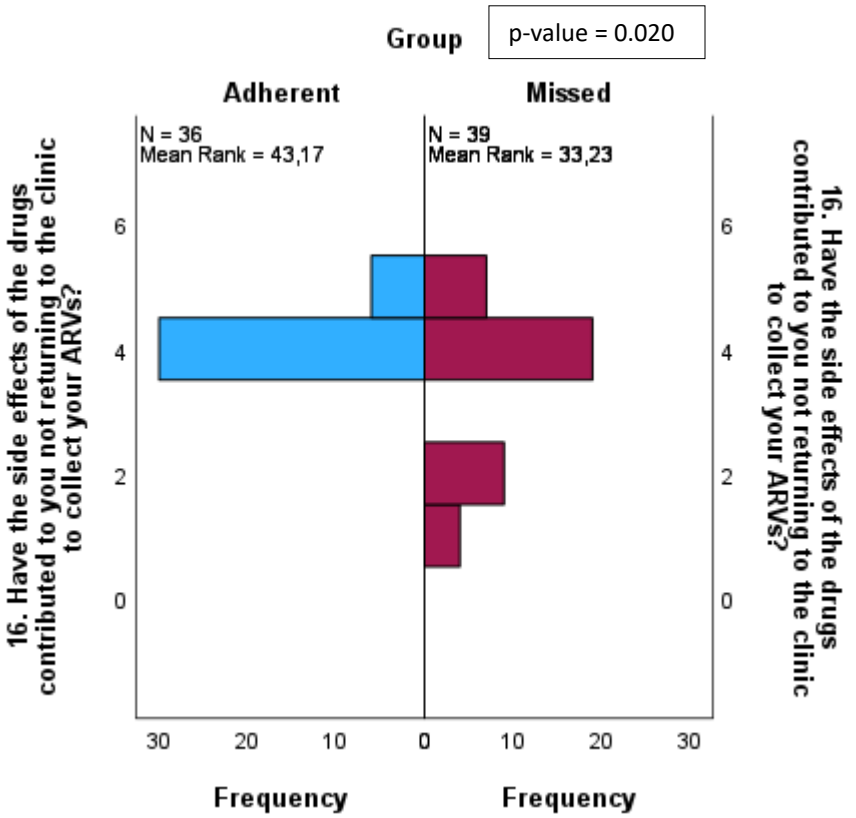

Figure 4.3: Relationship between the side effects of the drugs and clinic attendance

None of the patients in the adherent group reported missing their clinic appointments due to side effects. Those who missed appointments because of side effects were all in the missed group. This is shown by a higher mean rank in the Mann-Whitney test (Figure 4.3), indicating statistically significant differences between the two groups in this regard. Therefore, experiencing side effects is associated with missed ART clinic appointments.

MISHANDLING AND MISTREATMENT BY CLINIC STAFF

Question 17 was based on whether or not the participants had been mishandled or mistreated by the staff at the clinic. It was found that 9% (n= 9) of the respondents reported instances of mishandling or mistreatment by the staff at the clinic.

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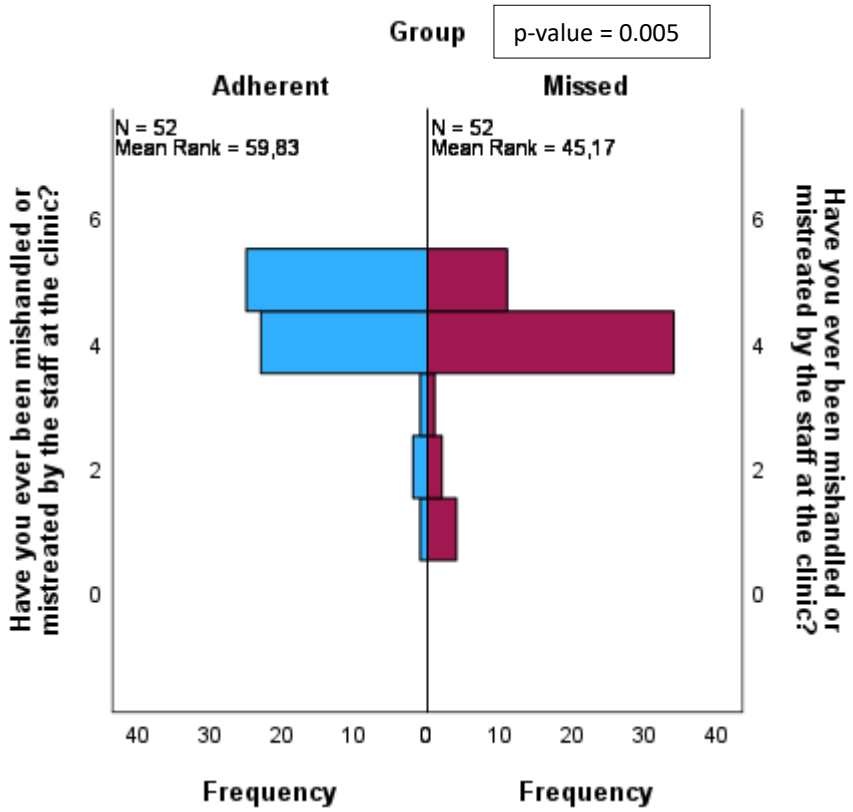

Figure 4.4: Mishandling and mistreatment by clinic staff

Although participants from both groups experienced some level of mishandling or mistreatment by clinic staff, the missed group experienced it significantly more than the adherent group. This is indicated by a p-value of 0.005 and a lower mean rank for the missed group, as shown in Figure 4.4 above.

MISHANDLING AND MISTREATMENT BY CLINIC STAFF CONTRIBUTION TO MISSED APPOINTMENT

A sub-question to question 17, and question 18 was aimed at determining whether the mishandling and mistreatment by clinic staff contributed to participants not returning to the clinic for their ARV collection. The data set (Table 4.12) illustrates that among those who were mishandled and mistreated by clinic staff, 10% (n=7) indicated that this mistreatment contributed to their decision not to return to the clinic for collecting antiretroviral medications (ARVs). This trend was more pronounced in the missed group, as presented in the Mann-Whitney test in Figure 4.5 below, and the two groups differed significantly in this regard, with a p-value= 0.023.

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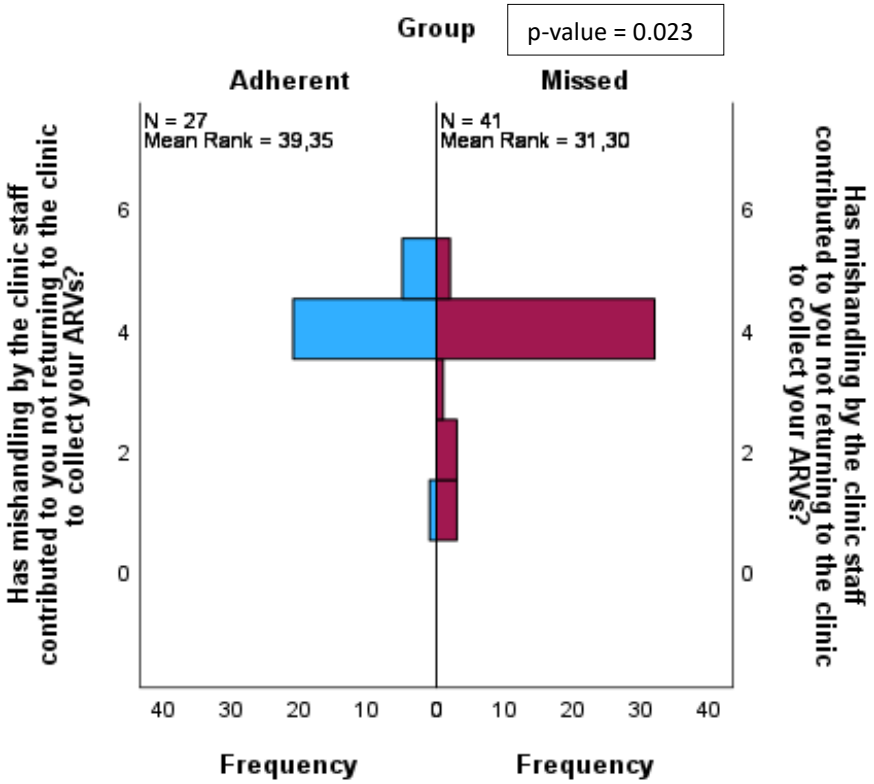

Figure 4.5: Relationship between mishandling by the clinic staff and clinic attendance

LACK OF ENOUGH COUNSELLING CONTRIBUTION TO MISSED APPOINTMENT

The results of whether or not the lack of sufficient counselling regarding ARVs had contributed to patients not returning to the clinic showed that among those who expressed a lack of sufficient counselling, 11% (n= 9) reported that this lack had contributed to their decision not to return to the clinic to collect ARVs.

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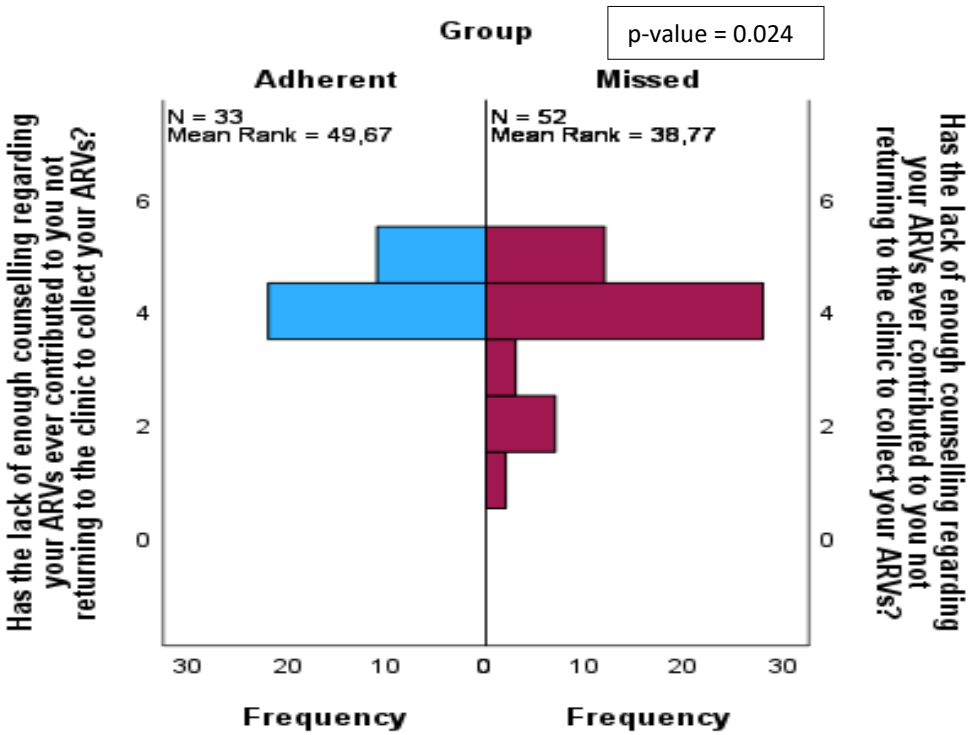

Figure 4.6: Relationship between the lack of enough counselling regarding ARVs and clinic attendance

A lower mean rank was observed within the missed group, indicating a negative impact of insufficient counselling regarding ARVs. Therefore, based on the Mann-Whitney test, lack of enough counselling is significantly associated with missed appointments, as shown in Figure 4.6 above.

USE OF TRADITIONAL MEDICINES

The question was included to establish whether the participants used traditional medicines. Almost half of the participants (n=51, 49%) agreed that they had used traditional medicine before.

The Mann-Whitney test results (Figure 4.7 below) concluded that the use of traditional medicine was significantly associated with missed appointments. This practice was more common within the missed group, as indicated by a lower mean rank compared to the adherent group.

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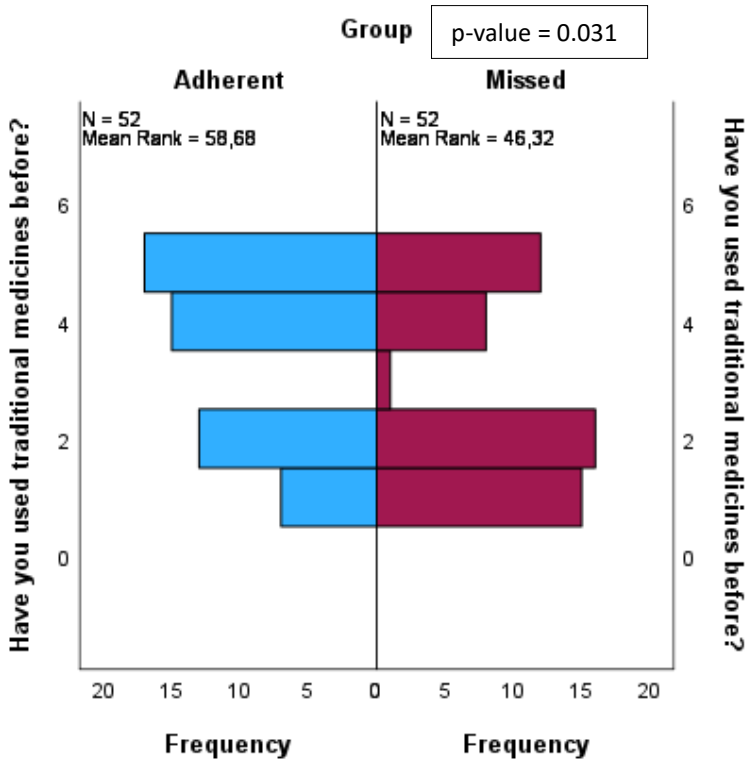

Figure 4.7: Relationship between the used traditional medicines and clinic attendance

OPTING FOR TRADITIONAL MEDICINES OVER ARVS

Further to Question 21, among those who had used traditional medicine before, 18% (n=12), indicated a preference for traditional medicine over ARVs.

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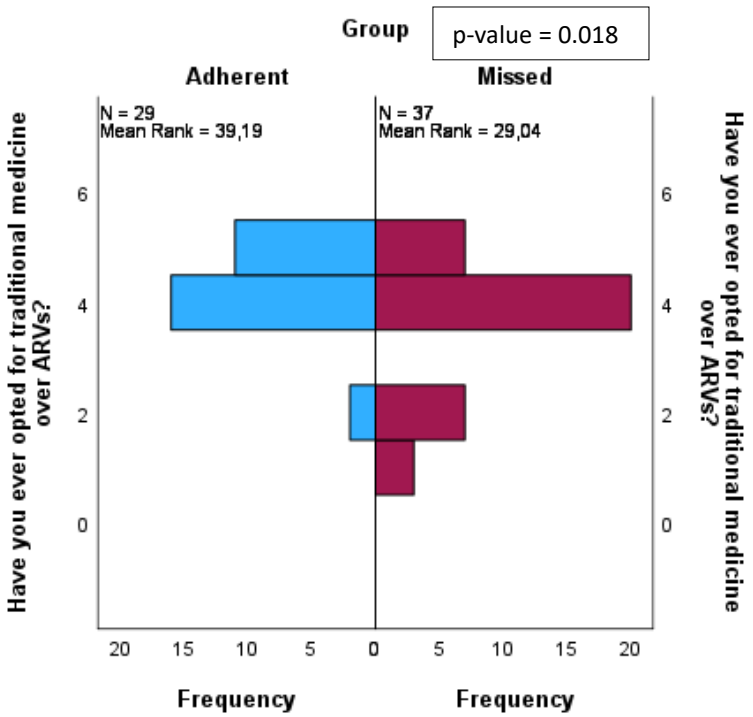

Figure 4.8: Relationship between opting for traditional medicine over ARVs and clinic attendance

The above-mentioned preference for traditional medicine over ARVs was more prevalent within the missed group compared to the adherent group, and the differences between the two groups, in this regard, were found to be statistically significant, as illustrated by p-value= 0.018 in Figure 4.8. Therefore, the preference for traditional medicine over ARVs is significantly associated with missed appointments.

LACK OF TRANSPORT TO THE CLINIC

Intended to determine whether the participants had experienced a lack of transport to the facility, Table 4.11 above reports that 18% (n= 19) of the respondents reported a lack of transport to the clinic.

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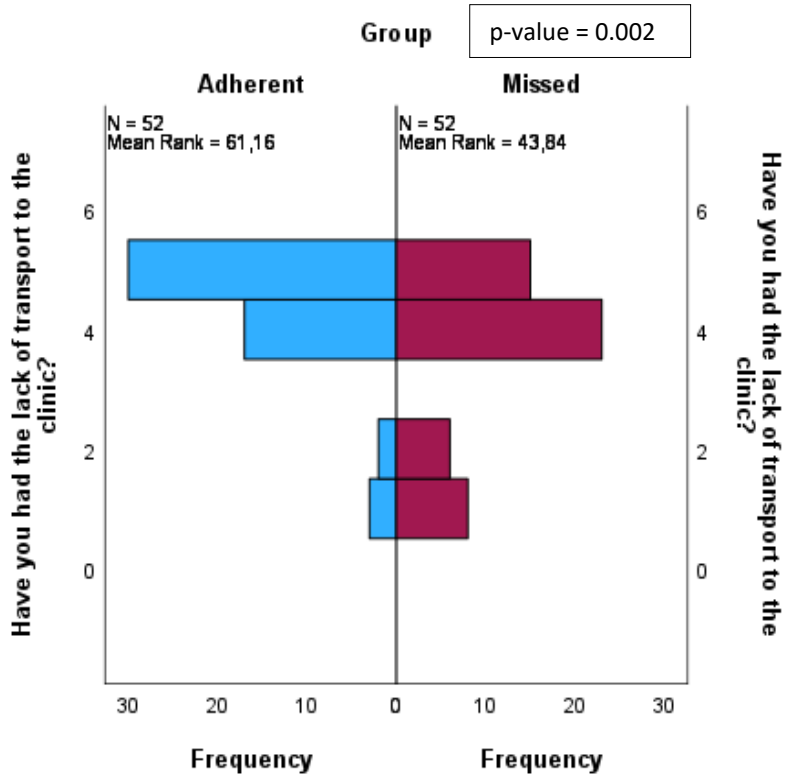

Figure 4.9: Relationship between the lack of transport and clinic attendance

While both groups experienced challenges related to transportation, the missed group was affected to a greater extent as shown by a lower mean rank in the figure below. As a result, lack of transport to the clinic was found to be significantly associated with missed appointments, as evident in the p-value= 0.002 in Figure 4.9 above.

THE LACK OF TRANSPORT FARE TO THE CLINIC

Twenty-one per cent (21%, n= 22) of the respondents reported a lack of transport fare to the clinic (Table 4.12). The lack of transport fare to the clinic was a challenge more prevalent in the missed group than in the adherent group, as indicated by a lower mean rank in the missed group. The differences in how the lack of transport fare impacted the two groups were found to be statistically significant, as shown by a p-value= 0.002. Therefore, the lack of transport fare to the clinic is significantly associated with missed appointments, as depicted in Figure 4.10 below.

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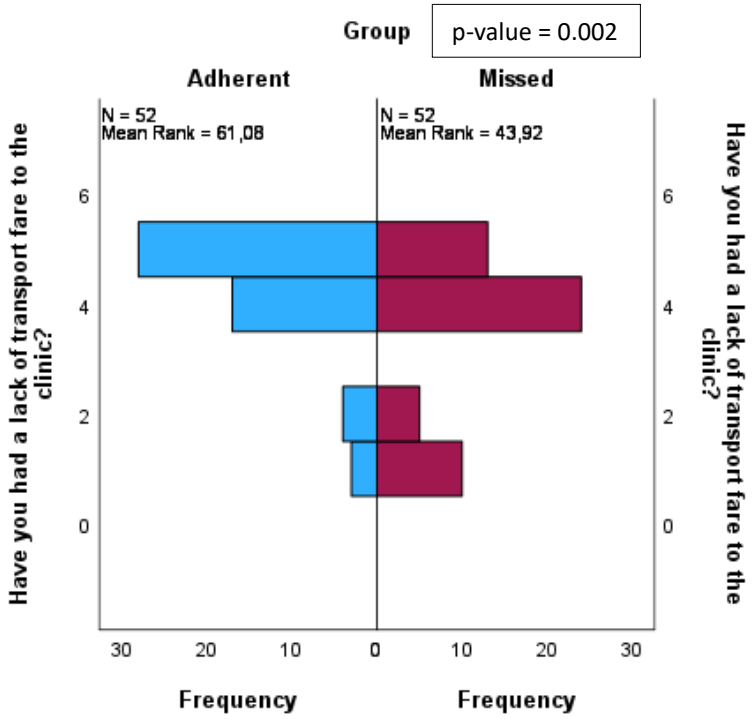

Figure 4.10: Relationship between the lack of transport fare and clinic attendance

4.4 SECTION C: PUBLIC HEALTH FACILITY SETTING AND HEALTH SYSTEMS RELATED FACTORS TO MISSED CLINIC APPOINTMENTS

The contents of this section explored patient-related factors that could contribute to missed appointments. Section C consisted of Question 27 to Question 46 inclusively.

A Mann-Whitney test was applied to each factor, to assess the association of the factor to missed appointments. The factors with a p-value less than 0,05 were associated with honouring of clinic appointments while no statistically significant differences were observed between the two groups concerning the factors with p-values greater than 0,05. The results are presented in Table 4.13 below and will further analyse the results of those factors that have been highlighted with a statistical significance of 5% (p-value ≤ 0.05).

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Table 4.13: Public health facility setting and health systems-related factors

Healthcare-related factors		Likert scale					Mann-Whitney U test				p-value
		Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Adherent N	Adherent Mean	Missed N	Missed Mean	
Is the facility setting at this clinic acceptable to you?	Freq	47	50	3	2	2	52	46.89	52	58.11	0.034
	%	45,2	48,1	2,9	1,9	1,9					
Are the HIV-related services rendered at this clinic acceptable to you?	Freq	48	49	3	2	2	52	46.45	52	58.55	0.022
	%	46,2	47,1	2,9	1,9	1,9					
Do you feel that confidentiality is maintained by the clinic staff when rendering these services?	Freq	47	48	6	2	1	52	48.63	52	56.38	0.145
	%	45,2	46,2	5,8	1,9	1,0					
Do you feel that the clinic staff treat patients with respect and dignity when rendering services?	Freq	47	50	5	2	0	52	47.97	52	57.03	0.086
	%	45,2	48,1	4,8	1,9	0,0					
Are waiting times kept within stipulated hours at the clinic?	Freq	3	27	28	34	12	52	55.93	52	49.07	0.228
	%	2,9	26,0	26,9	32,7	11,5					
Are you satisfied with the waiting times that you have experienced while at the clinic?	Freq	3	25	10	36	30	52	49.60	52	55.40	0.306
	%	2,9	24,0	9,6	34,6	28,8					
Have you ever been to the clinic and was told that your ARVs are not available in the clinic?	Freq	4	0	0	0	100	52	52.50	52	52.50	1.000
	%	3,8	0,0	0,0	0,0	96,2					
Has psychosocial support been offered in the clinic?	Freq	26	38	13	16	11	52	56.39	52	48.61	0.172
	%	25,0	36,5	12,5	15,4	10,6					
Have you ever experienced discrimination and isolation by the staff in the clinic?	Freq	6	2	6	49	41	52	55.19	52	49.81	0.319
	%	5,8	1,9	5,8	47,1	39,4					
Do you feel that the clinic has enough qualified staff to handle your issues?	Freq	26	74	4	0	0	52	49.83	52	55.17	0.253
	%	25,0	71,2	3,8	0,0	0,0					
Has the clinic staff ever offered you adherence counselling services?	Freq	41	55	6	2	0	52	51.19	52	53.81	0.619
	%	39,4	52,9	5,8	1,9	0,0					

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Does the clinic offer nutritional support services?	**Freq**	4	7	33	45	15	52	45.30	52	59.70	0.010
	%	3,8	6,7	31,7	43,3	14,4					
Are all health services in the clinic easily accessible to you?	**Freq**	15	71	14	3	1	52	50.42	52	54.58	0.393
	%	14,4	68,3	13,5	2,9	1,0					
Are there express services that have been offered to you in the clinic?	**Freq**	5	25	66	6	2	52	47.98	52	57.02	0.074
	%	4,8	24,0	63,5	5,8	1,9					
Are the clinic staff always adequately prepared to render you with services in the clinic?	**Freq**	31	67	4	2	0	52	45.69	52	59.31	0.006
	%	29,8	64,4	3,8	1,9	0,0					
Are there comprehensive HIV care services offered at the clinic?	**Freq**	27	73	3	0	1	52	46.50	52	58.50	0.011
	%	26,0	70,2	2,9	0,0	1,0					
Have you ever experienced staff attitudes that have contributed to you not returning to the clinic on your clinic dates?	**Freq**	3	7	1	64	29	52	58.89	52	46.11	0.012
	%	2,9	6,7	1,0	61,5	27,9					
Are you satisfied with the quality of services offered at the clinic?	**Freq**	28	65	9	1	1	52	47.25	52	57.75	0.039
	%	26,9	62,5	8,7	1,0	1,0					
Have you ever been turned back from the clinic without receiving health care services?	**Freq**	6	1	0	11	86	52	59.34	52	45.66	<0.001
	%	5,8	1,0	0,0	10,6	82,7					
Has the quality of services offered at the clinic contributed to you missing your appointment?	**Freq**	2	7	3	34	14	8	53.50	52	26.96	<0.001
	%	1,9	6,7	2,9	32,7	13,5					

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FACILITY SETTING

This question was aimed at determining whether the participants regarded the facility setting as acceptable to them. Ninety-three per cent (93%, n=97) (Table 4.13) of the participants found the facility setting at the clinic to be unacceptable.

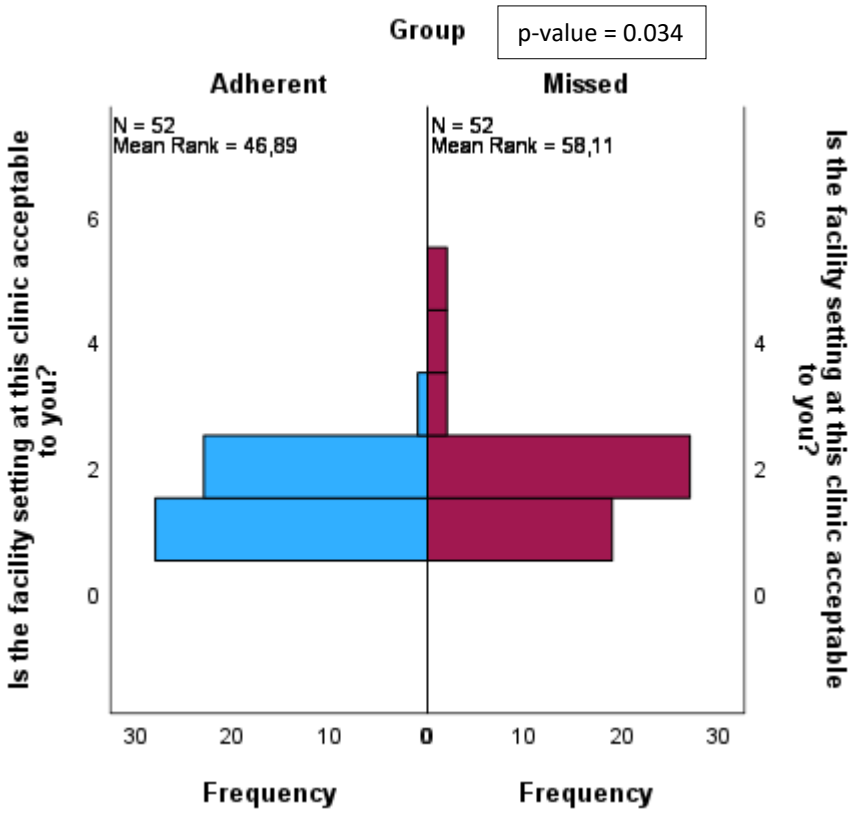

Figure 4.11: Relationship between facility setting acceptability and clinic attendance

Figure 4.11 above illustrates that dissatisfaction was more prevalent among those who missed (n=) their appointments, as indicated by a higher mean rank for the missed group compared to the adherent group. While the majority of participants from both groups expressed satisfaction with the facility setting, some participants who missed their appointments expressed dissatisfaction. Consequently, the differences in perception of the facility setting were statistically significant between the two groups, as indicated by a p-value of 0.034. Therefore, dissatisfaction with the clinic setting is associated with missed appointments.

HIV-RELATED SERVICES PROVIDED AT THIS CLINIC

Question 28 provided insight into whether or not the HIV services that are rendered within this clinic are acceptable to this population. As established from the findings (Table 4.13), 93% (n= 97) of the participants found the HIV-related services rendered at the clinic to be unacceptable.

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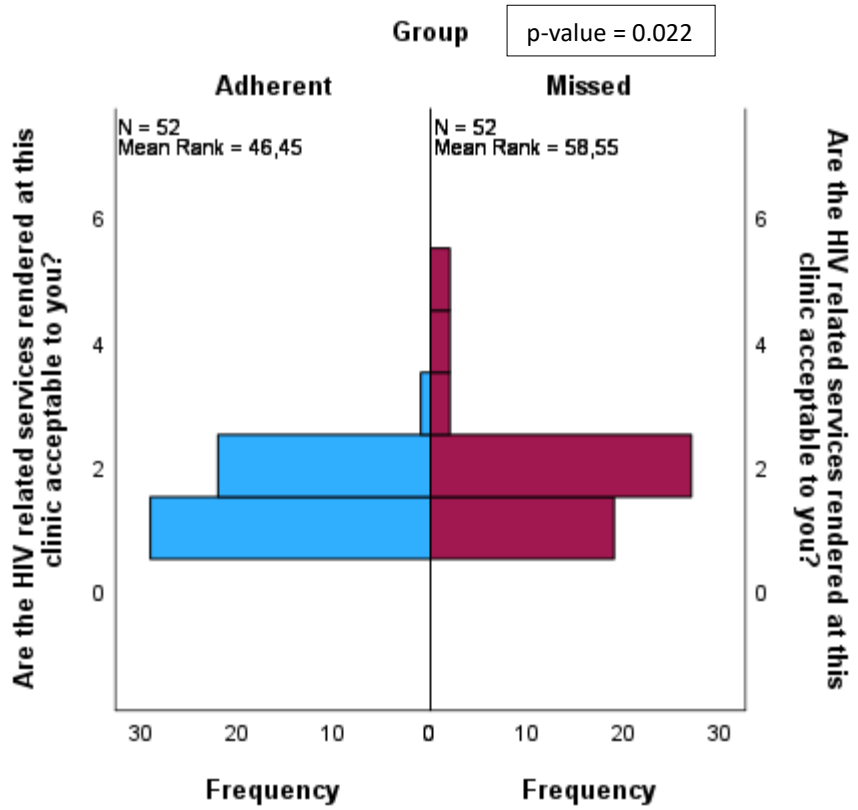

Figure 4.12: Relationship between HIV-related service acceptability and clinic attendance

A level of dissatisfaction came from those who missed their appointments, as indicated by a higher mean rank for the missed group compared to the adherent group (Figure 4.12). While both groups expressed satisfaction with the HIV-related services offered, some participants from the missed group expressed dissatisfaction and the differences in this perception determined by p-value= 0.22, were found to be statistically significant between the two groups.

NUTRITIONAL SUPPORT FROM THE CLINIC

On account of nutritional support from the clinic, over half (58%, n= 60) of the participants agreed that the clinic offered nutritional support services, while 32% (n= 33) were unsure, and 10% (n= 11) disagreed, as according to the tabulation in Table 4.13 above.

Figure 4.13 below reveals that most of the participants from both groups were either unsure or disagreed that the clinic offered nutritional support. Although, those who missed their appointments disagreed to a greater extent indicated by a higher mean rank. The differences

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in this perception between the two groups were found to be statistically significant (p-value= 0.010).

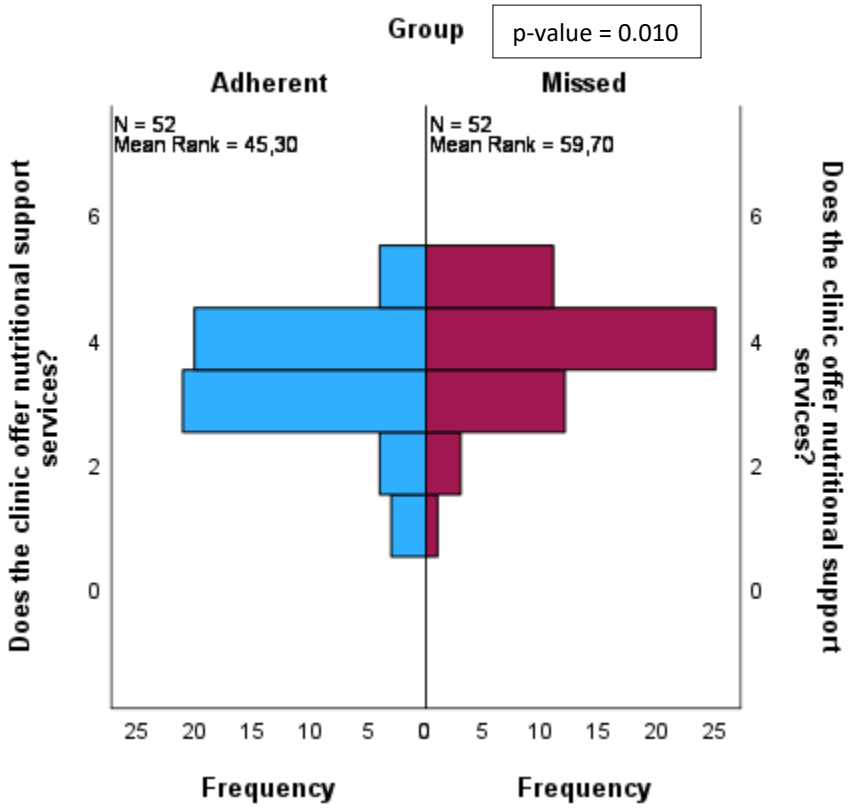

Figure 4.13: Relationship between nutritional support services and clinic attendance

ADEQUATE PREPARATION BY CLINIC STAFF

Ninety-four per cent (n=98) of the participants felt that clinic staff were not always adequately prepared to provide services in the clinic (Table 4.13).

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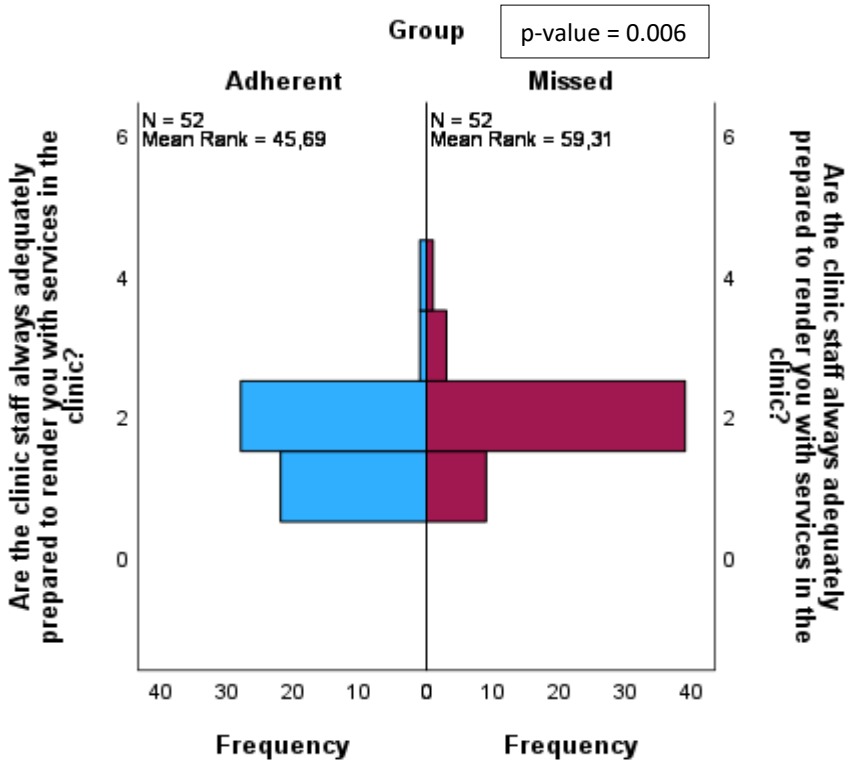

Figure 4.14: Relationship between adequate staff preparation to render services and clinic attendance

The majority of participants from both groups agreed that the clinic staff were always adequately prepared to render services. However, some participants from both groups did not share this sentiment. Overall, the adherent group felt that the clinic staff were more adequately prepared to serve them compared to those who missed their appointments. The differences in these perceptions were statistically significant, with a p-value of 0.006, as indicated in Figure 4.14 above.

COMPREHENSIVE HIV SERVICES IN THE CLINIC

In consideration of the comprehensive health care package, Question 42 was aimed at determining whether the population is rendered with comprehensive HIV care services at the clinic. According to projected findings in Table 4.13, the majority (96%, n= 100) of the participants disagreed that comprehensive HIV services are offered at the clinic.

None of the participants who missed their appointments agreed that comprehensive HIV care services were offered at the clinic. Overall, the majority of participants from both groups agreed that the clinic offers comprehensive HIV care, with the missed group agreeing to a greater extent, as shown by a higher mean rank (Figure 4.15 below). The differences between the two

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groups were statistically significant, as indicated by a p-value of 0.011, thus concluding that the lack of a comprehensive HIV care package is associated with missed appointments.

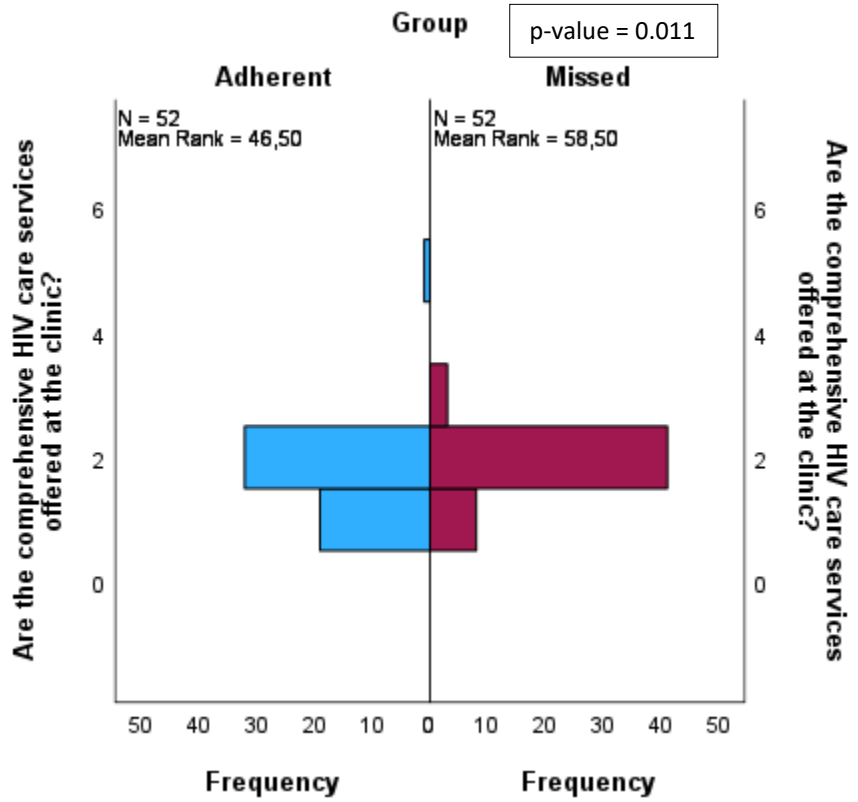

Figure 4.15: Relationship between comprehensive HIV care services offered and clinic attendance

STAFF ATTITUDES AND THEIR CONTRIBUTION TO MISSED APPOINTMENTS

This question explored staff attitudes as a public health facility factor to missed clinic appointments. Respondents rated their experience of staff attitudes on a Likert scale. The findings are as suggested in the above table, Table 4.13, and Figure 4.16 respectively. The majority of participants (89%, n= 93) experienced staff attitudes that contributed to their decision not to return to the clinic on their scheduled dates.

The majority of participants from both groups did not report experiencing staff attitudes that deterred them from returning to the clinic on their appointment dates. However, some participants reported experiencing these negative attitudes, and those who missed their appointments experienced them to a greater extent than the adherent group. This is indicated by a lower mean rank for the missed group in Figure 4.16. The differences in how these two

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groups rated their experiences with staff attitudes were statistically significant, with a p-value of 0.012. Therefore, negative staff attitudes are associated with missed appointments.

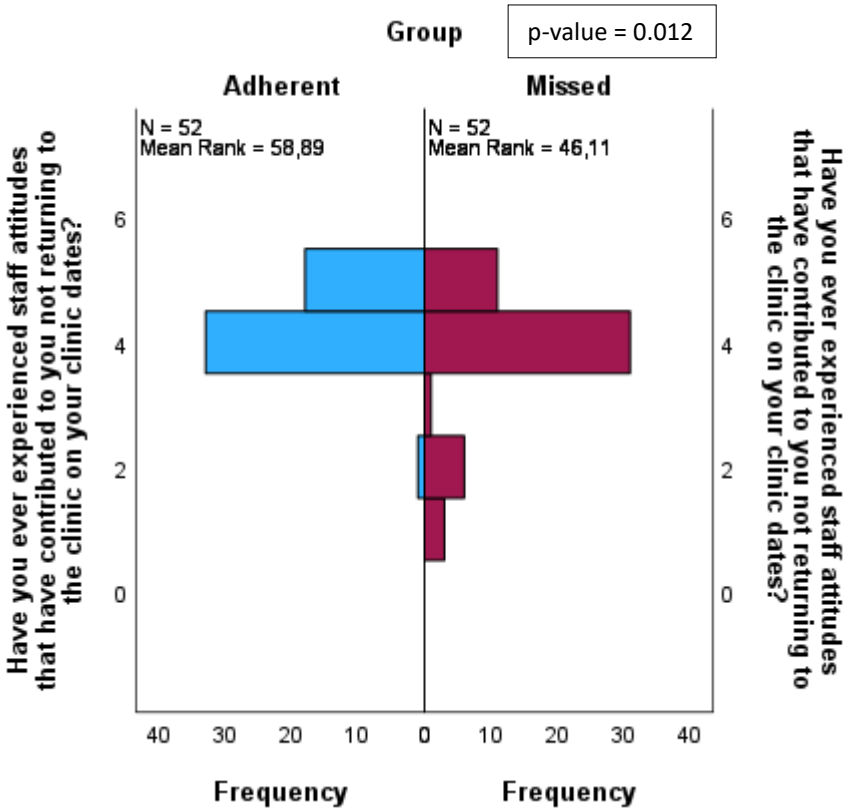

Figure 4.16: Relationship between experiencing staff attitudes and clinic attendance

PARTICIPANT SATISFACTION WITH THE QUALITY OF SERVICES AT THE CLINIC

When asked, “Are you satisfied with the quality of services offered at the clinic?”, the majority (89%, n= 73) of the respondents were dissatisfied with the quality of services offered at the clinic, with only 2% (n= 2) expressing satisfaction and the remaining n=9 (9%) unsure in their responses (Table 4.13).

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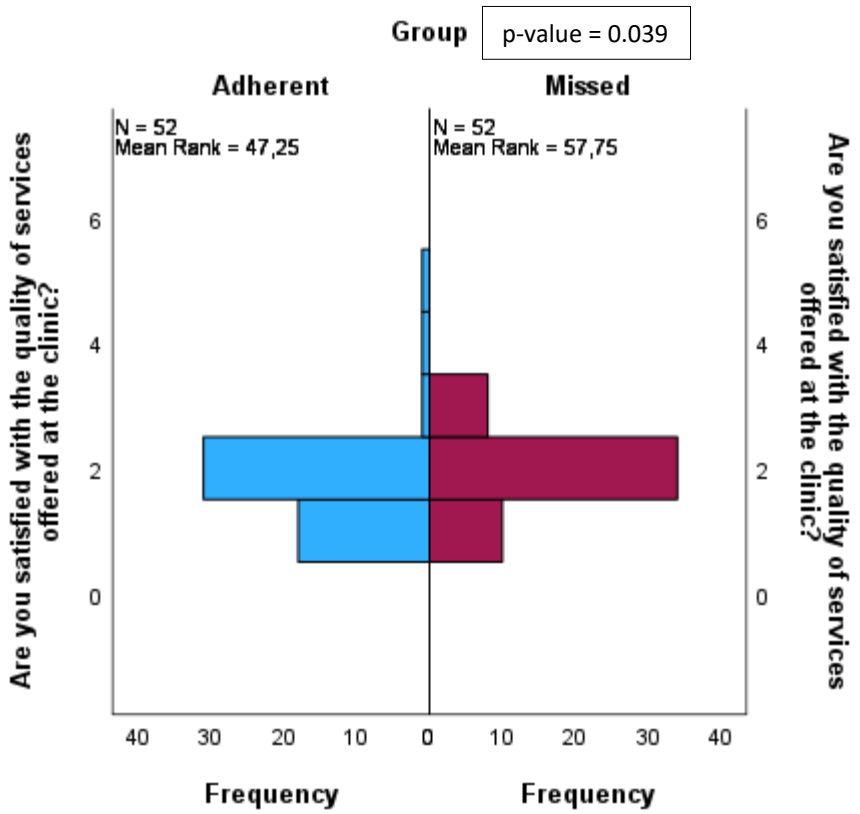

Figure 4.17: Relationship between the satisfaction with the quality of services offered and clinic attendance

While both groups expressed satisfaction with the service quality, the missed group, exhibiting a higher mean rank, expressed more satisfaction than the adherent group (Figure 4.17). The differences in satisfaction between the two groups were found to be statistically significant, as indicated by a p-value of 0.039. This, therefore, concludes that the quality of service offered at the clinic is associated with the missing of appointments.

TURNING BACK FROM THE CLINIC WITHOUT RECEIVING SERVICES

Table 4.13 labels that over 90% (n= 97) of the respondents agreed that they have been turned away from the clinic without receiving healthcare services. However, worth noting in Figure 4.18 below is that the adherent group expressed a particularly stronger agreement with this statement, as shown by a higher mean rank in the adherent group. This resulted in statistically significant (p-value= <0.001) differences between the two groups. Although this may not be consistent with factors associated with missed appointments, the adherent group's persistence is an interesting finding.

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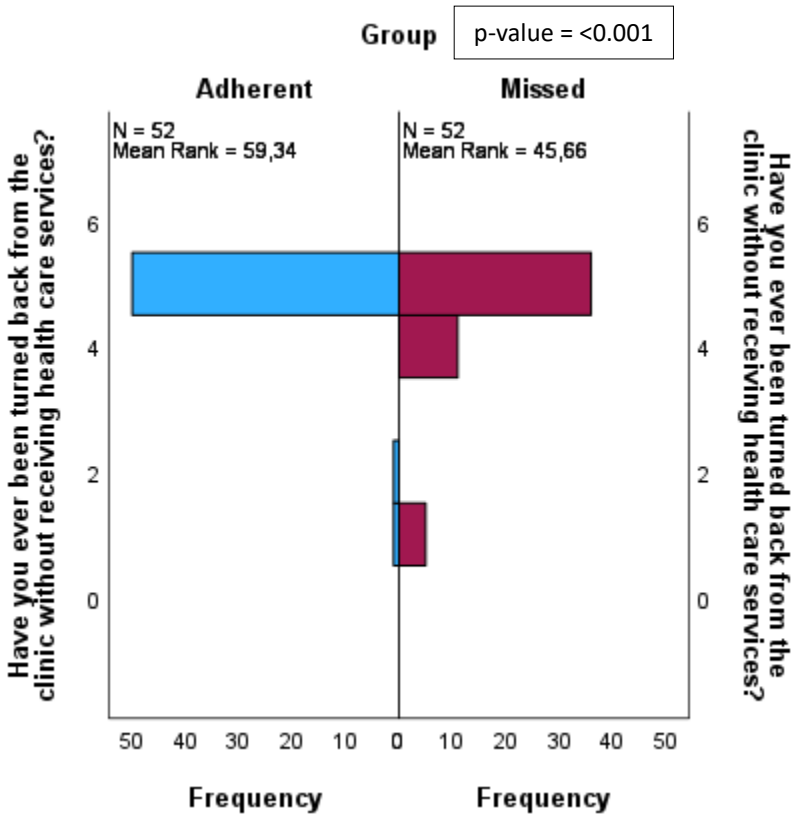

Figure 4.18: Relationship between being turned back from the clinic without receiving health care services and clinic attendance

QUALITY OF SERVICES IN THE CLINIC AND ITS CONTRIBUTION TO MISSED APPOINTMENTS

The majority (80%, n=48) of the respondents agreed that the quality of services offered at the clinic contributed to them missing their appointments (Table 4.13). Figure 4.19 illustrates that in the adherent group, all respondents who answered this question expressed strong agreement with the statement, although the number of respondents was relatively low (8 out of 52). This resulted in a significantly higher mean rank for the adherent group compared to the missed group. Thus, the differences between the two groups in terms of their perception of whether the quality of service at the clinic has contributed to their missing appointments were statistically significant, with a p-value of less than 0.001.

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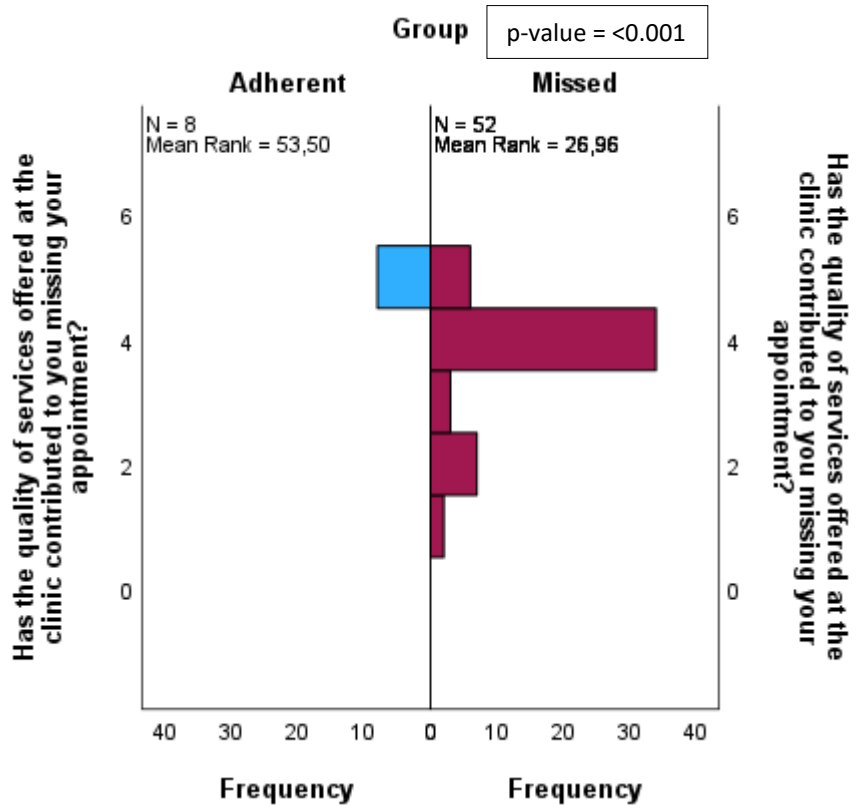

Figure 4.19: Relationship between the quality of services offered and clinic attendance

4.5 CONCLUSION

This chapter accounted for the data analysis and results of demographic composition, patient-related factors, health facility and health systems-related factors to missed clinic appointments. The presentation of findings was done with the aid of tables and figures using either percentages or frequencies. The demographic profile of the participants provided crucial information on participants' characteristics in association with missed clinic appointments. In addition, cross-tabulations were done on the associations between demographic characteristics and patient-related as well as healthcare-related factors, and the findings were projected and discussed. Patient-related factors as well as healthcare facility- and healthcare system-related factors were presented in detail. The results obtained were guided using research questions. Chapter five (5) of the study will discuss the findings, conclude, provide limitations of the study, and make recommendations for the clinics and further research.

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CHAPTER 5

DISCUSSION OF FINDINGS, RECOMMENDATIONS AND FINAL CONCLUSION

5.1 INTRODUCTION

The results of the analysed data from the questionnaire used were presented in Chapter Four. The study aimed to determine the factors associated with missed clinic appointments among adults on Anti-Retroviral Therapy at a Primary Healthcare Facility in the uThukela District of KwaZulu-Natal, South Africa. This chapter discusses the results and factors that contributed to missed appointments among adults on ART. The outline of the chapter is as follows: demographic characteristics related to missed appointments, patient-related factors, as well as public health facility and health systems related factors to missed appointments, recommendations to address factors to missed clinic appointments, study limitations and the conclusion.

5.2 DEMOGRAPHIC CHARACTERISTICS RELATED TO MISSED CLINIC APPOINTMENTS

The results showed that gender, employment status, and HIV status disclosure were associated with missed appointments.

Gender

The results revealed that the male gender within this population was more prone to missing appointments than the female gender. This is similar to previous studies that revealed that significantly more females were enrolled in ART treatment programmes, adherent to follow-up visits and better retained in clinical care than males were (Fonsah, Njamnshi, Kouanfack, Qiu, Njamnshi, Tagny, Nchindap, Kenmogne, Mbanya, Heaton, & Kanmogne, 2017; Kheswa, 2017). Further to this, Fonsah *et al.* (2017), state that the male gender is more likely to seek healthcare when they are at a more advanced AIDS stage, and loss to follow-up was significantly higher in males (ibid). The possible explanation for these results in the present study is that the study was conducted in a rural setting. Employment opportunities are out of town and culturally, it is generally more acceptable for men to travel out of town to find work than it is for women. Further to this, most men within this area are employed as truck drivers which results in them spending odd hours on the road which could also result in them not honouring their clinic appointments.

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In addition, more males reported prior use of traditional medicine. This is consistent with the cultural beliefs of indigenous medicine and herbs among men as well as the affiliation of traditional practitioners within this population. This may also be because generally, the men of this population believe in seeking traditional help more than medical assistance as some of them believe that they cannot go to the clinic to disclose their conditions to females, as most nurses are female at the clinic. This is similar to findings in Heestermans *et al.* (2016).

Employment status

Most participants who missed their scheduled treatment appointments were employed. In support of this, Kheswa (2017) found that in the Eastern Cape study participants reported that their employers refused to grant them leave to collect their treatment despite knowing their health status, resulting in them missing their clinic appointments. Although it would be interesting to further engage on the HR policies that are in place for sick leave, it is also worth noting that within this setting, most employment is either informal or contractual and most of them operate on a 'no work no pay' basis.

Both the employed and unemployed participants faced challenges related to the lack of transport fare to the clinic, although the challenge was more pronounced among the unemployed (89%) compared to 72% among the employed. This reveals that the unemployed subset opts for the use of traditional medicine as traditional practitioners are easily found within the community compared to having to use transport to get to the clinic. It is logical for the people of this setting because due to the taxi routes, some patients are required to take a total of four taxis to commute. Even among those who are employed, due to low income versus the cost of daily living, other needs may outweigh the need to go to the clinic when it is not considered a medical emergency (i.e. when a person seems physically well).

HIV status disclosure

The results verified that non-disclosure is an associated factor with missing clinic appointments. Previous studies have concurred that HIV-positive patients who had disclosed their HIV status to their families, partners or others were almost four times more likely to adhere to their clinic ART care appointments than patients who had not disclosed their status to others (Angelo & Alemayehu, 2021; Kibaara, Blat, Lewis-Kulzer, Shade, Mbullo, Cohen & Bukusi, 2016; Brown, Getahun, Ayieko, Kwarisiima, Owaraganise, Atukunda, Olilo, Clark, Bukusi, Cohen & Kamya, 2019).

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A cross-tabulation further found an association between status disclosure and experiencing stigmatisation, discrimination or isolation as well as with status disclosure and experiencing stigmatisation, discrimination, isolation and contribution to missed appointments. Eighty-eight per cent (88%) of the participants disclosed their HIV status to their partner(s) or family member(s). Among those who disclosed their status, 77% reported experiencing feelings of stigmatisation, discrimination, or isolation from their loved ones. In total, 72% of the participants reported experiencing feelings of stigmatisation, discrimination or isolation while the remaining 28% did not. It is reported that individuals who experience stigmatisation are often those who have disclosed their HIV status. While 73% of the participants indicated that stigma, discrimination, or isolation contributed to them missing their clinic appointment, of those who disclosed their status, 80% missed appointments due to stigma, discrimination, or isolation, in contrast to 43% among those who did not disclose their status. This confirms that HIV is still highly stigmatised within this setting and as a result, even those who have enough courage and motivation to disclose their status, end up being affected negatively by it.

5.3 PATIENT-RELATED FACTORS TO MISSED CLINIC APPOINTMENTS

The results revealed that stigma, discrimination or isolation, the lack of proper nutrition, side effects of ARV drugs, the experience of being mistreated by the staff at the clinic, the lack of enough counselling regarding ARVs, the use of traditional medicine and opting for traditional medicine over ARVs, and the lack of transport and transport fare to the clinic are factors that were patient-related, associated with missed appointments.

Stigma, discrimination and isolation

It was found that experiencing stigma, discrimination, or isolation contributed to the participants' decision to miss their clinic appointments. Patients who had experienced stigmatisation, any form of discrimination or isolation as a result of their HIV status were more likely to be discouraged from attending clinic appointments. In addition, some would not even want to be seen at the clinic for any other reason as their HIV status is presumed to be associated with clinic attendance (Angelo & Alemayehu, 2021; Kibaara *et al.*, 2016; Kheswa, 2017).

Lack of proper nutrition

The results indicated that the deficiency of proper nutrition and sufficient food has contributed to missed appointments. Moreover, the lack of proper nutrition and enough food emerged as

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a significant factor influencing the patient's return to the clinic for treatment collection. Food insecurity was previously found to be related to non-adherence to ART treatment as both a day-to-day barrier and an underlying factor for ART interruption as participants reported that they cannot take their ARVs on an empty stomach, thus resulting in them not returning to their respective facilities for ART monitoring and care (Makhado & Mongale, 2019; Kheswa, 2017). The lack of sufficient food has contributed to patients believing that they cannot ingest drugs on an empty stomach, more especially because ARVs are ingested daily and for a lifetime.

ARV side effects

Experiencing side effects to ART contributed to the missing of appointments. Fonsah *et al.* (2017), Makhado and Mongale (2019), and Kheswa (2017) previously found that patients who reported to have experienced side effects were more likely to be reported among treatment interrupters i.e. who miss subsequent pill collection appointments. Therefore, side effects were found to be associated with missed ART clinic appointments. Although side effects had previously been experienced by participants and were more likely to cause patients to not return to the facility for pill refills, it has been found that with enhanced adherence counselling and side effects eventually subsiding, the patients are more likely to return and be retained in care (Angelo & Alemayehu, 2021).

Mishandling and mistreatment by staff

Mishandling and mistreatment by staff are reported contributors to missed clinic appointments. The mishandling and mistreatment of patients by clinic staff have proven to be a lingering issue, as it previously was reported as one of the factors contributing to reduced retention to care in health facilities (Clement *et al.*, 2020).

Lack of enough counselling regarding ARVs

The results reveal that the lack of enough counselling regarding ART has contributed to the decision not to return to the clinic to collect ARVs. The experience of lack of adherence counselling among adults on ART is not an uncommon finding as it has been reported in previous studies to have been a factor in dishonoured clinic appointments (Clement *et al.*, 2020, Kheswa, 2017; Angelo & Alemayehu, 2021). This further confirms the great need for strengthening adherence counselling among ART patients.

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Opting for the use of traditional medicine

Among those who have used traditional medicine before, a preference for traditional medicines over ARVs is reported to be associated with missed appointments. Likewise, a systematic review conducted in parts of South Africa reported that using traditional medication for the healing of HIV was a major factor in non-adherence to ART which subsequently resulted in missed follow-up ART care (Makhado & Mongale, 2019). The said preference for traditional medicine over ARVs was more prevalent within the control group compared to the missed group (p-value= 0.018) (see section B, Figure 4.24). Further to this, the use of traditional medicines has co-existed with clinic visits, as previous study participants have reportedly explained that they also use their traditional medication simultaneously with ART (Ammon, Mason, & Corkery, 2018; Makhado & Mongale, 2019).

Lack of transport or transport fare to the clinic

The lack of transport fare to the clinic is proven to be associated with missed clinic appointments. Lowane and Lebese (2022) in agreement with this finding, attested that study participants reported that a lack of transport money interfered with adherence to ART appointments which resulted in the inability to visit the clinic regularly, as they lived far away from the healthcare facility.

5.4 PUBLIC HEALTH FACILITY AND HEALTH SYSTEMS RELATED FACTORS TO MISSED CLINIC APPOINTMENTS

The results revealed that unacceptable healthcare facility setting, unacceptable rendering of HIV-related services at the facility, lack of nutritional support, inadequately prepared clinic staff, the lack of provision of comprehensive HIV care services at the clinic, staff attitudes, dissatisfaction with the quality of services offered at the clinic, being turned back from the clinic without receiving health care services, were health facility and health systems related factors to missed appointments.

Facility setting and HIV services rendered at the clinic

Most participants (93%) reported that both the facility setting and the HIV services rendered at the clinic were unacceptable, which contributed to missing clinic appointments. Heestermans *et al.* (2016), in a systematic review, concur that dissatisfaction with the clinic setting is a determinant of dishonouring clinic appointments. Although it may be unclear what it is about the facility setting and the HIV services that the ART clients are dissatisfied with, it has proved to be interlinked factors that result in ART patients dishonouring their

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appointments. For this reason, it may be beneficial for the facility to conduct further enquiries to acquire a deeper understanding to assist the facility in intervening accordingly.

Nutritional support from the clinic

The lack of knowledge on nutritional support services offered by the clinic, was reported to be associated with missed clinic appointments. The clinic does not have a clear system of how nutritional support is offered to the patients. Thus, facilitating the education of what nutritional support entails as well as who is eligible for it would assist in giving patients better access to it.

Preparedness of clinic staff to render HIV-related services

The results revealed that a large sum of the participants felt that the clinic staff were not always adequately prepared to provide HIV services and this contributed to participants not returning to the clinic. Similarly, previous studies reported non-compliance among patients on ART as contributed by a lack of preparation by the clinic staff (Clement *et al.*, 2020). Concluding that the inadequate preparation by clinic staff is a contributing factor to missed clinic appointments.

Provision of a comprehensive healthcare package

According to projected findings, almost all of the participants disagreed with the comprehensive HIV care being offered at the clinic which resulted in them missing appointments. In consensus, it was reported that the lack of integration of health services is more likely to contribute to patients' non-adherence to prescribed clinic visits (Clement *et al.*, 2020). Thus, a review of the services, systems and patient flow that is in place within the clinic would help the team identify the gaps that need to be addressed.

Staff attitudes

The majority of participants experienced staff attitudes that contributed to their decision not to return to the clinic on their scheduled dates. Staff attitudes have been coined as one of the contributors to non-adherence to ART care schedules (Clement *et al.*, 2020). Further to this, the WHO (2021) has previously recommended that positive or negative staff attitudes are directly positively or negatively linked to patient care outcomes. The staff attitudes within this facility have then contributed to missed appointments among the ART patients.

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Quality of services offered

A significant proportion of the respondents were dissatisfied with the quality of services offered at the clinic. Dissatisfaction with healthcare facilities and services provided and how they are provided is a negative contributor to patient retention of care (Heestermans *et al.*, 2016). Conclusively, dissatisfaction with the quality of services is a factor that makes ART clients to not return to the clinic.

Being turned back from the clinic without receiving services

Over 90% of the respondents agreed that they had been turned away from the clinic without receiving healthcare services, and this was associated with missing appointments.

5.5 RECOMMENDATIONS

In this study, the recommendations provide a form of clarity and direction for the necessary action to be taken that will assist the healthcare facility and health system processes in reducing the high rates of missed appointments among adult ART clients.

5.5.1 Recommendations for future research

- It would be of benefit to conduct similar studies at the clinics within the same district, province, and South Africa at large. This will provide more evidence-based data that will enable comparison which will indicate similarities and uniqueness (if any) between the different health populations in districts, and provinces and provide a national outlook, for the betterment of the National ART programme outcomes.
- A similar study may be conducted using a qualitative approach to evaluate and further probe these factors that are associated with missed clinic appointments among adults on ART, as it may be beneficial for the facility to conduct further enquiries to acquire a deeper understanding to help the facility intervene accordingly.
- It is recommended that a study enquiry be conducted on how missed appointments may affect ART client outcomes in terms of adherence to treatment and/or viral load suppression.

5.5.2 Recommendations for the PHC facility and patient care

The honouring of follow-up ART care appointments is associated with adherence to ARVs which contributes to better prognosis and outcomes. Contributing factors of missed clinic appointments among ART clients is a topic to be explored from all avenues, as the high rates of missed appointments among registered ART clients remain a notable hindrance in the

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national ART programme. KwaZulu Natal has the highest HIV burden, nationally, it is then crucial that necessary research is conducted to understand the actual root causes for better intervention. Below are recommendations based on the literature review (Chapter 2) and the findings of this study (Chapter 4).

- This notable difference between the gender utilisation of healthcare facilities brings light to the need for innovative health promotion strategies for males and possibly tailored ART care services for this gender. These interventions may include men's services within the clinic where services are rendered by male healthcare workers, community activations such as '*isibaya samadoda'* (translated the 'men's kraal') which will discuss medical topics outside of the clinic setting, collaborative interventions between the healthcare practitioners and traditional health practitioners and finally, patient involvement when setting next appointment dates. Respondents who did not honour their appointments were unable to get time off from their jobs to honour their clinic appointments. Patient involvement and contribution in the next appointment dates could be a good intervention for patient-centred care, instead of issuing patients with generic appointment dates that they may not be able to honour.
- Being employed has affected patients' ability to access ART services. Patient involvement and contribution in the next appointment dates could be a good intervention for patient-centred care. Instead of issuing patients with generic appointment dates that they may not be able to honour, clinic flexi-hours could also facilitate those who work normal 8-4 jobs, as well the strengthening of community-based services can be considered to alleviate the burden on the healthcare users.
- A substantial percentage of ART clients are affected by lack of transport and transport fare. An intervention could be the strengthening of community-based ART services that will allow the population to receive the necessary health services without the transport expense. This is in collaboration with other health stakeholders and district supporting partners and could be done by implementing community clinic days where comprehensive PHC services are brought to a central area where patients do not need to travel to reach the clinic.
- Stigma, discrimination and isolation remain a treatment barrier even after so many decades of HIV awareness. In addition, it affects HIV disclosure among the population. This confirms that the healthcare department still needs to put efforts into trying to destigmatise this condition through community interactions to bring education and

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awareness to the communities at large as well as support groups and even counselling for those who are affected by stigma and discrimination due to their HIV status.

- The lack of adequate nutrition are instances where the health department needs to strengthen stakeholder engagement to collaborate with the likes of the South African Social Security Agency (SASSA) for social grants, as well as agriculture departments for interventions such as teaching people how to plant food in their yards and donate crops and seeds as well since this setting would allow for people to cultivate within their yards. As well as educate and clarify to the patients what nutritional support entails as well as who is eligible for it, which could assist in giving patients better access to it.
- To address the lack of counselling and side effects, it would also be interesting to further probe whether the lack of counselling is a matter of the patients not receiving it at all or the question of the quality of counselling the healthcare professionals are providing. This then would call for further training and possibly mentorship on the side of the clinic staff because adherence counselling is an important factor in treatment adherence. It further serves to inform healthcare practitioners to strengthen health education and adherence counselling, especially on side effects, as a form of promoting the U=U (Undetectable = Untransmittable) concept which would also encourage viral load suppression.
- Ninety-three per cent (93%) of the participants reported that both the facility setting and the HIV services rendered at the clinic were unacceptable. Although it may be unclear what it is about the facility setting and the HIV services that the ART clients are dissatisfied with, it has proved to be interlinked factors that result in ART patients dishonouring their appointments. For this reason, it may be beneficial for the facility to conduct further enquiries on this matter.
- Inadequate preparation by clinic staff is a contributing factor to missed clinic appointments. This then suggests that the facility staff may need to revisit the health systems as well as health policies through guidelines and SOP refreshers to enhance the preparation and quality of care rendered. Including regular and consistent staff capacitation through new and refresher training and regular refreshers of current SOPs.
- The mishandling, mistreatment by staff and staff attitudes within this facility have then contributed to missed appointments among the ART patients. Thus, delving deeper into what this could mean exactly, and into this topic area at large is a high necessity. This calls for the strengthening of patient feedback and/or patient satisfactory surveys

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system within the facility so that incidences of patient mishandling by staff can swiftly be attended to. This would help to identify the specific staff members that need to be addressed directly rather than generalisations, to help the facility managers avoid future patient safety incidences that may be even more severe.

5.6 CONTRIBUTION TO THE BODY OF KNOWLEDGE

This study aimed to determine the factors associated with missed clinic appointments among adults on ART in the uThukela District of KZN, South Africa. The findings of the study significantly contribute towards the body of knowledge in the ART programme and PHC system within the district, province, South Africa and globally.

- A literature review was conducted in chapter two to determine what current factors are associated with missed appointments among adult ART clients. The studies have declared that, although there are several barriers/factors to treatment collection, these barriers can be classified into socio-demographic related, patient-related, health system–related, as well as social-cultural related factors. Although the findings are vast, there remain unexplored aspects that are recommended for further studies in future.
- The results provide an encouraging background and deep insight into factors that contribute to missed appointments in adult ART clients within the South African context.
- The findings of the study identified the ART clients' needs for better ART care outcomes and intensely made recommendations to ensure the needs of the ART clients are effectively acknowledged for the best possible treatment outcomes.

5.7 LIMITATIONS

- This study was conducted at a selected PHC facility in the uThukela District. The study was limited to those adults who were collecting ART at the respective facility, and who met the inclusion criteria. The findings were also limited to the sample and not a generalisation of the population.
- Due to the tedious process of tracking and tracing that can take up to more than three months (90 days), the study had a response rate of 58.4% and a 100% completion rate, as only a limited number of patients returned to care within the data collection period. However, the findings are significant as the Cronbach coefficient indicated that the findings are reliable.

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- The study recommendations were limited to the findings within the population of the respective PHC facility.

5.8 CONCLUSION

The study was aimed at determining factors associated with missed appointments among adults on anti-retroviral therapy at a primary healthcare facility in the uThukela District of KZN, South Africa. The research study was guided by the aim of the study, study objectives as well as research questions of the study. The use of a structured questionnaire was employed for collecting data from the ART clients who participated. The results revealed that demographic factors include gender, employment status, and HIV status. Disclosure, stigma, discrimination or isolation, lack of adequate nutrition, side effects of ARVs, mistreatment by the clinic staff, lack of counselling regarding ART treatment, use of traditional medicine, and lack of transport or transport fare attributed to patient-related factors. An unacceptable facility setting, unacceptable rendering of HIV services, lack of nutritional support, inadequately prepared clinic staff, lack of comprehensive HIV care package, staff attitudes, dissatisfaction with the quality of services and being turned back without receiving health care services were health-related factors to missed clinic appointments. Recommendations are made for further studies within the clinic and region, while interventions such as health systems strengthening, more patient involvement, strengthened community-based services as well as strengthened stakeholder engagement may be considered by the health facility. Lastly, the limitations of the study were defined.

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ANNEXURE A

DECLARATION OF ORIGINALITY

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ANNEXURE A

DECLARATION OF ORIGINALITY UNIVERSITY OF PRETORIA

The Department of Nursing Science places great emphasis upon integrity and ethical conduct in the preparation of all written work submitted for academic evaluation. While academic staff teach you about referencing techniques and how to avoid plagiarism, you too have a responsibility in this regard. If you are at any stage uncertain as to what is required, you should speak to your lecturer before any written work is submitted. You are guilty of plagiarism if you copy something from another author's work (eg a book, an article or a website) without acknowledging the source and pass it off as your own. In effect you are stealing something that belongs to someone else. This is not only the case when you copy work word-forward (verbatim), but also when you submit someone else's work in a slightly altered form (paraphrase) or use a line of argument without acknowledging it. You are not allowed to use work previously produced by another student. You are also not allowed to let anybody copy your work with the intention of passing if off as his/her work. Students who commit plagiarism will not be given any credit for plagiarised work. The matter may also be referred to the Disciplinary Committee (Students) for a ruling. Plagiarism is regarded as a serious contravention of the University's rules and can lead to expulsion from the University. The declaration which follows must accompany all written work submitted while you are a student of the Department of Department of Nursing Science. No written work will be accepted unless the declaration has been completed and attached.

Full names of student: Nomcebo Philile Dlamini
Student number: 21705659
Topic of work: **Factors associated with missed appointments among Adults on Anti-Retroviral Therapy in the Uthukela District of Kwazulu-Natal, South Africa.**

Declaration

1. I understand what plagiarism is and am aware of the University's policy in this regard.
2. I declare that this research proposal (eg essay, report, project, assignment, dissertation, thesis, etc.) is my own original work. Where other people's work has been used (either from a printed source, Internet, or any other source), this has been properly acknowledged and referenced in accordance with departmental requirements.
3. I have not used work previously produced by another student or any other person to hand in as my own.

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4. I have not allowed and will not allow anyone to copy my work with the intention of passing it off as his or her own work.

SIGNATURE

Nomcebo P. Dlamini

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ANNEXURE B

DATA COLLECTION INSTRUMENT

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ANNEXURE B

DATA COLLECTION INSTRUMENT

QUESTIONNAIRE

*** The Questionnaire was translated to the language of the study population, isiZulu.*

Title of the study: FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTIRETROVIRAL THERAPY IN THE UTHUKELA DISTRICT OF KWAZULU-NATAL, SOUTH AFRICA.

Date completed: _____

Respondent unique code: _____ **(Missed 02) or (Adherent 01)**

Dear respondent,

Thank you for agreeing to participate in this study, it is highly appreciated. As stated in the consent form, your participation is voluntary and you can choose to withdraw from this study at any point. Please remember that your identity will remain protected. Please follow the instructions under each section and feel free to ask whenever you need clarity.

SECTION A

Patient Demographic Information

Instructions: Please complete all the sections by ticking the relevant block

1. Age Group	
18-35 years	
36-50 years	
> 50 years	

2. Sex	
Male	
Female	

3. Highest education level	
No schooling	
Primary education	
Secondary education	
Tertiary education	
Other, specify:	

4. Employment level	
Unemployed	
Self-employed	
Part-time	
Full-time	
4.1. If employed, are you able to get time off from work on your clinic date?	

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5. How long have you been on ARVs?	
1-2 years	
3-5 years	
6-10 years	
10+ years	

6. What is your relationship status?	
Single	
Married or Living together	
In a relationship	
It's complicated or in casual relationships	

SECTION B: Patient related factors to missed clinic appointments.

7. Have you disclosed your status to your partner(s) or family?	
Yes	
No	

Please answer the following questions by ticking the relevant box on a scale of 1-5, where one is strongly agree and five is strongly disagree

Strongly agree-1
Agree-2
Not sure-3
Disagree-4
Strongly disagree-5
Not Applicable-6

No.	Question	1	2	3	4	5	6
8	If you have disclosed to your partner(s) or family, does it contribute to you not going to the clinic?						
9	If you have not disclosed to your partner(s) or family, does non-disclosure contribute to you not going to the clinic?						
10	Have you ever felt stigmatised, discriminated or isolated by your loved ones because of your HIV status?						

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11	Has the stigma, discrimination or isolation ever contributed to you not going to the clinic on your clinic date?						
12	Do you find this clinic convenient for HIV care needs/ services?						
13	Are you satisfied with the staff in the clinic?						
14	Has the lack of proper nutrition and enough food contributed to you not returning to the clinic to collect your ARVs?						
15	Have you ever experienced side effects from taking ARVs?						
16	Have the side effects of the drugs contributed to you not returning to the clinic to collect your ARVs?						
17	Have you ever been mishandled or mistreated by the staff at the clinic?						
18	Has mishandling by the clinic staff contributed to you not returning to the clinic to collect your ARVs?						
19	Do you feel you have received enough counselling regarding your ARVs?						
20	Has the lack of enough counselling regarding your ARVs ever contributed to you not returning to the clinic to collect your ARVs?						
21	Have you used traditional medicines before?						
22	Have you ever opted for traditional medicine over ARVs?						
23	Have you had the lack of transport to the clinic?						
24	Has the lack of transport to the clinic ever contributed to you not collecting your ARVs on your clinic date?						
25	Have you had a lack of transport fair to the clinic?						

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26	Has the lack of transport fair to the clinic ever contributed to you not collecting your ARVs on your clinic date?						

SECTION C: Public health facility setting and health systems related factors to missed clinic appointments.

No.	Question	1	2	3	4	5	6
27	Is the facility setting at this clinic acceptable to you?						
28	Are the HIV related services rendered at this clinic acceptable to you?						
29	Do you feel that confidentiality is maintained by the clinic staff when rendering these services?						
30	Do you feel that the clinic staff treat patients with respect and dignity when rendering services?						
31	Are waiting times kept within stipulated hours at the clinic?						
32	Are you satisfied with the waiting times that you have experienced while at the clinic?						
33	Have you ever been to the clinic and was told that your ARVs are not available in the clinic?						
34	Has psychosocial support been offered in the clinic?						
35	Have you ever experienced discrimination and isolation by the staff in the clinic?						
36	Do you feel that the clinic has enough qualified staff to handle your issues?						
37	Has the clinic staff ever offered you adherence counselling services?						

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38	Does the clinic offer nutritional support services?						
39	Are all health services in the clinic easily accessible to you?						
40	Are there express services that have been offered to you in the clinic?						
41	Are the clinic staff always adequately prepared to render you with services in the clinic?						
42	Are the comprehensive HIV care services offered at the clinic?						
43	Have you ever experienced staff attitudes that have contributed to you not returning to the clinic on your clinic dates?						
44	Are you satisfied with the quality of services offered at the clinic?						
45	Have you ever been turned back from the clinic without receiving health care services?						
46	Has the quality of services offered at the clinic contributed to you missing your appointment?						

The end.
Thank you so much for your participation.

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ANNEXURE C

PARTICIPANT'S INFORMATION AND CONSENT FORM

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Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

ANNEXURE C

ICD 1A

ANNEXURE C

PARTICIPANT'S INFORMATION & INFORMED CONSENT DOCUMENT

STUDY TITLE: FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTI-RETROVIRAL THERAPY IN THE UTHUKELA DISTRICT OF KWAZULU-NATAL, SOUTH AFRICA

Sponsor: Self-funded

Principal Investigators: Nomcebo Dlamini (the researcher)

Institution: University of Pretoria

DAYTIME AND AFTER HOURS TELEPHONE NUMBER(S):

Daytime number/s: 072 557 9199

Afterhours number: 072 557 9199

DATE AND TIME OF FIRST INFORMED CONSENT DISCUSSION:

			:	
Date	**Month**	**year**	**Time**	

Dear Prospective Participant

Dear Mr. / Mrs. .....

1) INTRODUCTION

You are invited to volunteer for a research study. I am doing research for a Master's Degree purpose at the University of Pretoria. This information in this document is to help you to decide if you would like to participate. Before you agree to take part in this study you should fully

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understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to ask the researcher. You should not agree to take part unless you are completely happy about all the procedures involved.

2) THE NATURE AND PURPOSE OF THIS STUDY

The aim of this study is to determine the factors associated with missed clinic appointments among adults on Anti-Retroviral Therapy in a Primary Healthcare facility in the Uthukela of KwaZulu-Natal, South Afrcia. By doing so we wish to learn more about the factors that contribute to ART missed appointments within this population.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS.

This study involves answering some questions with regarding your illness, the attitudes you have received from nurses at your encounter with them at the clinic and how these have affected you honouring your subsequent clinic appointments.

4) POSSIBLE RISKS AND DISCOMFORTS INVOLVED

There are no medical risks associated with the study. There may only be questions that will make you feel uncomfortable if they provoke you having to relive a displeasing encounter you previously had with a nurse.

5) POSSIBLE BENEFITS OF THIS STUDY

Although you may not benefit directly. The study results may help us to improve the kind of service that you receive from the nurses at the clinic and how open you are to honouring your clinic appointments. Not just you but your whole community as well.

6) COMPENSATION

You will not be paid to take part in the study. There are no costs involved for you to be part of the study.

7) YOUR RIGHTS AS A RESEARCH PARTICIPANT

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Your participation in this study is entirely voluntary and you can refuse to participate or stop at any time without stating any reason. Your withdrawal will not affect your access to other medical care.

8) ETHICS APPROVAL

This Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research involving human/subjects. A copy of the Declaration may be obtained from the investigator should you wish to review it.

9) INFORMATION

If I have any questions concerning this study, I should contact:

Miss Nomcebo Dlamini 0725579199

10) CONFIDENTIALITY

All information obtained during the course of this study will be regarded as confidential. Each participant that is taking part will be provided with an alphanumeric coded number e.g. A001. This will ensure confidentiality of information so collected. Only the researcher will be able to identify you as participant. Results will be published or presented in such a fashion that patients remain unidentifiable. The hard copies of all your records will be kept in a locked facility at the University of Pretoria.

11) CONSENT TO PARTICIPATE IN THIS STUDY

- I have received, read and understood the above written information about the study.
- I have had adequate time to ask questions and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue with the study and that withdrawal will not affect my further treatments.

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- I am participating willingly.
- I have received a signed copy of this informed consent agreement.

Participant's name (Please print)	Date
Participant's signature	Date
Researcher's name (Please print)	Date
Researcher's signature	Date

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AFFIRMATION OF INFORMED CONSENT BY AN ILLITERATE PARTICIPANT
(If suitable)

I, the undersigned, ……..…., have read and have explained fully to the participant, named …… , the informed consent document, which describes the nature and purpose of the study in which I have asked the him/her to participate. The explanation I have given has mentioned both the possible risks and benefits of the study. The participant indicated that he/she understands that he/she will be free to withdraw from the study at any time for any reason and without jeopardising his/her standard care.

I hereby certify that the patient has agreed to participate in this study.

_____	_____
Participant's name (Please print)	Date
_____	_____
Participant's signature	Date
_____	_____
Investigator's Name (Please print)	Date
_____	_____
Investigator's Signature	Date
_____	_____
Name of the person who witnessed the informed consent (Please print)	Date
_____	_____
Signature of the Witness	Date

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ANNEXURE D

LETTER OF APPROVAL PROVINCIAL RESEARCH OFFICE C-1

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KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3189/ 3123 Fax: 033 394 3782
Email:

Health Research & Knowledge Management

NHRD Ref: KZ_202307_009

Dear Ms N Dlamini
(UP)

Approval of research

1. The research proposal titled **'FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTIRETROVIRAL THERAPY IN THE UTHUKELA DISTRICT IN KWAZULU-NATAL, SOUTH AFRICA.'** was reviewed by the KwaZulu-Natal Department of Health (KZN-DoH).

   The proposal is hereby **approved** for research to be undertaken at Watersmeet clinic.

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

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

Yours Sincerely

Dr E Lutge
Chairperson, Provincial Health Research Committee
Date: 25 July 2023

GROWING KWAZULU-NATAL TOGETHER

Dlamini, N.P. (2024)

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ANNEXURE E

LETTER OF APPROVAL CHIEF EXECUTIVE OFFICER C-2

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UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

KWAZULU-NATAL PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DIRECTORATE:

Postal Address :Private Bag X9929, LADYSMITH,3370
Physical Address:36 Malcom Road, LADYSMITH,3370
Tel: 036 367 2111 EXT 398 Fax: 036 631 4221 Email address: Mokhethi.Pule@kznhealth.gov.za
www.kznhealth.gov.za

ACTING CHIEF EXECUTIVE OFFICER

DATE: 22 JUNE 2023	FILE
TO: MS NOMCEBO DLAMINI	FROM: DR M.E PULE ACTING CHIEF EXECUTIVE OFFICER
RE: PERMISSION TO CONDUCT RESEARCH ON FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTIRETROVIRAL THERAPY IN THE UTHUKELA DISTRICT IN KWAZULU-NATAL, SOUTH AFRICA.	

Dear Nomcebo Dlamini

I have pleasure in informing you that permission has been granted to you by the Ladysmith hospital to conduct research on "Factors associated with missed appointments among adults on antiretroviral therapy in the uThukela District in KwaZulu-Natal, South Africa.

Please note the following:

1. Please ensure that you adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. Please ensure this office is informed before you commence your research.
3. The Facility will not provide any resources for this research.
4. You will be expected to provide feedback on your findings to the Facility.
5. You are required to contact this office regarding dates for providing feedback when the research has been completed.

Thanking you.

Sincerely

DR M.E PULE
ACTING CEO

2023/06/22
DATE

GROWING KWAZULU NATAL TOGETHER

Dlamini, N.P. (2024)

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ANNEXURE F

REQUEST TO ADOPT DATA COLLECTION INSTRUMENT – STUDY QUESTIONNAIRE

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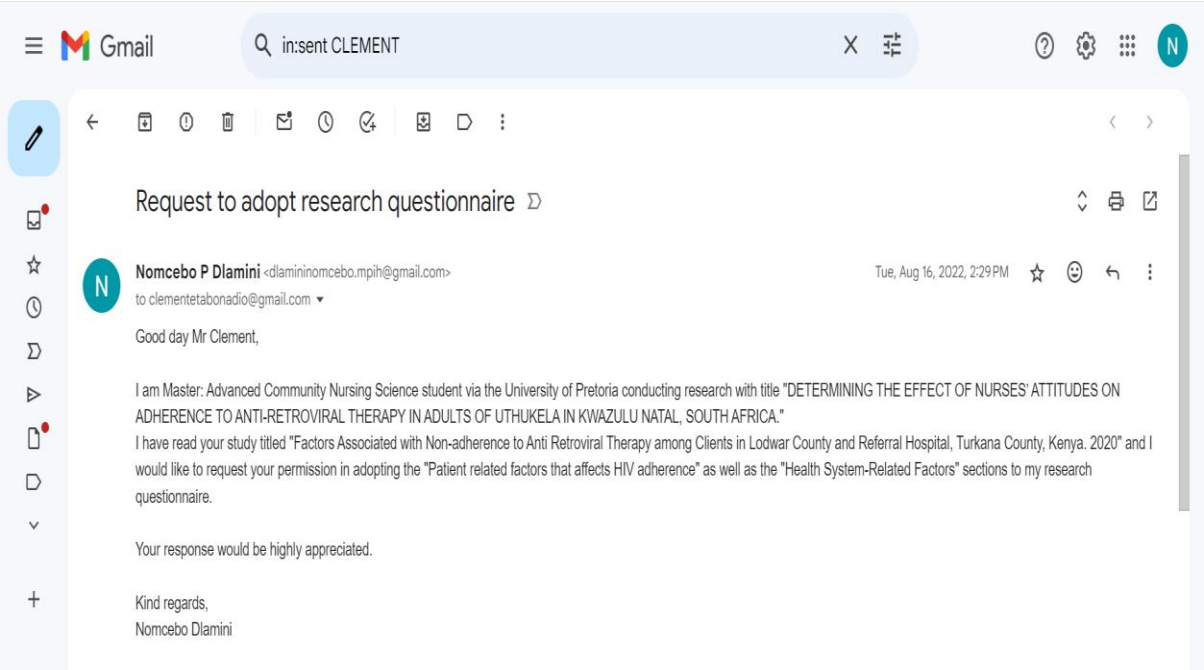


Gmail in:sent CLEMENT

Request to adopt research questionnaire

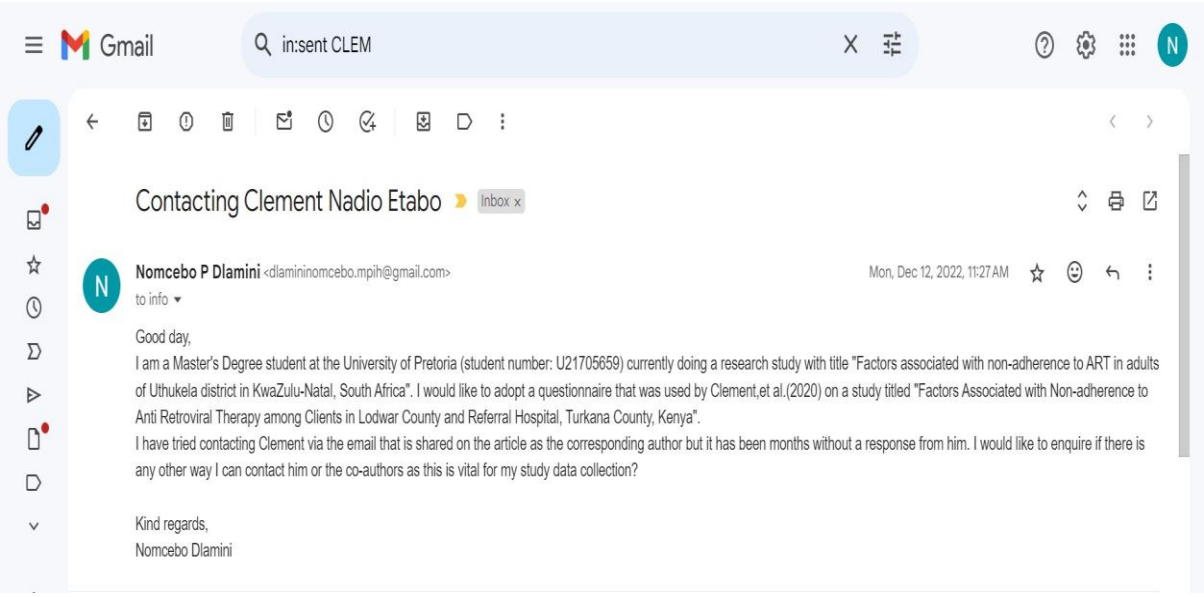
Nomcebo P Dlamini <dlamininomcebo.mpih@gmail.com> Tue, Aug 16, 2022, 2:29 PM
to clementetabonadio@gmail.com

Good day Mr Clement,

I am Master: Advanced Community Nursing Science student via the University of Pretoria conducting research with title "DETERMINING THE EFFECT OF NURSES' ATTITUDES ON ADHERENCE TO ANTI-RETROVIRAL THERAPY IN ADULTS OF UTHUKELA IN KWAZULU NATAL, SOUTH AFRICA."
I have read your study titled "Factors Associated with Non-adherence to Anti Retroviral Therapy among Clients in Lodwar County and Referral Hospital, Turkana County, Kenya. 2020" and I would like to request your permission in adopting the "Patient related factors that affects HIV adherence" as well as the "Health System-Related Factors" sections to my research questionnaire.

Your response would be highly appreciated.

Kind regards,
Nomcebo Dlamini



Gmail in:sent CLEM

Contacting Clement Nadio Etabo Inbox x

Nomcebo P Dlamini <dlamininomcebo.mpih@gmail.com> Mon, Dec 12, 2022, 11:27 AM
to info

Good day,
I am a Master's Degree student at the University of Pretoria (student number: U21705659) currently doing a research study with title "Factors associated with non-adherence to ART in adults of Uthukela district in KwaZulu-Natal, South Africa". I would like to adopt a questionnaire that was used by Clement,et al.(2020) on a study titled "Factors Associated with Non-adherence to Anti Retroviral Therapy among Clients in Lodwar County and Referral Hospital, Turkana County, Kenya".
I have tried contacting Clement via the email that is shared on the article as the corresponding author but it has been months without a response from him. I would like to enquire if there is any other way I can contact him or the co-authors as this is vital for my study data collection?

Kind regards,
Nomcebo Dlamini

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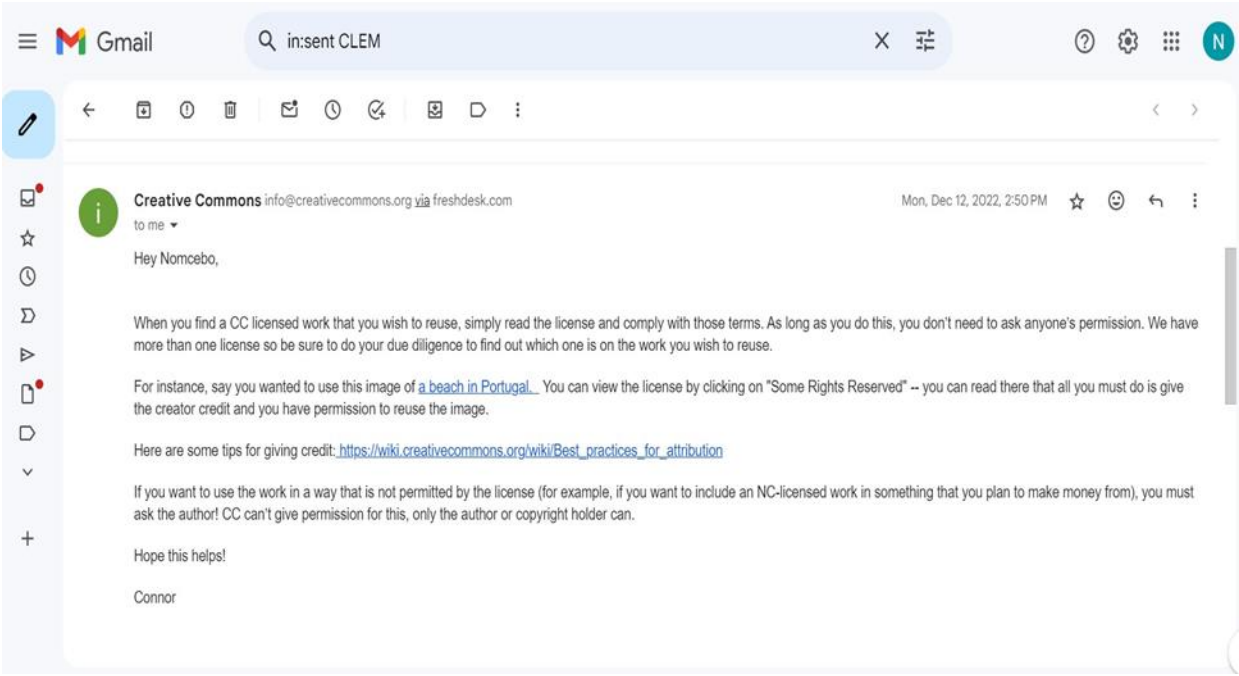
ANNEXURE G

APPROVAL TO ADOPT DATA COLLECTION INSTRUMENT – STUDY QUESTIONNAIRE

© University of Pretoria



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ANNEXURE H

LETTER OF APPROVAL – RESEARCH AND POSTGRADUATE COMMITTEE SCHOOL OF HEALTH CARE SCIENCES

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UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

www.up.ac.za

Faculty of Health Sciences
School of Health Care Sciences
Room 5-19. HW Snyman South
University of Pretoria,
Private Bag X323
GEZINA
0007
Tel: 012 356-3213/4
Kitty.uys@up.ac.za

24 November 2022

Faculty Ethics Committee

Faculty of Health Sciences

University of Pretoria

To whom it may concern,

Evaluation of a protocol for the following student:

Student: Nomcebo P Dlamini (U2175659)

Title: FACTORS ASSOCIATED WITH NON-ADHERENCE TO ANTI- RETROVIRAL THERAPY IN ADULTS OF UTHUKELA DISTRICT IN KWAZULU-NATAL, SOUTH AFRICA.

This letter serves to confirm that the above-mentioned protocol was discussed by the Postgraduate Committee of the School of Health Care Sciences during the:

On- line meeting of 05 October 2022

The proposal was accepted **with minor changes**, and the corrections were implemented. The proposal is hereby referred to your committee for ethical clearance.

Sincerely yours,

Professor Kitty Uys

Chairperson:Research and postgraduate committee

School of Health Care Sciences

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ANNEXURE I

ETHICS RESEARCH COMMITTEE CLEARANCE: UNIVERSITY OF PRETORIA

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Institution: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0278 Approved for use through August 31, 2023.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

Faculty of Health Sciences **Research Ethics Committee**

18 May 2023

Approval Certificate
Amendment

Dear Miss NP Dlamini,

Ethics Reference No.: 72/2023 – Line 1
Title: Factors associated with missed appointments among adults on antiretroviral therapy in the Uthukela district in KwaZulu-Natal, South Africa

The **Amendment** as supported by documents received between 2023-04-19 and 2023-05-17 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2023-05-17 as resolved by its quorate meeting.

Please note the following about your ethics approval:
- Please remember to use your protocol number (72/2023) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

Ethics approval is subject to the following:
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

On behalf of the FHS REC, Dr R Sommers
MBChB, MMed (Int), MPharmMed, PhD
Deputy Chairperson *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

Research Ethics Committee
Room 4-60, Level 4, Tswelopele Building
University of Pretoria, Private Bag x323
Gezina 0031, South Africa
Tel +27 (0)12 356 3084
Email: deepeka.behari@up.ac.za
www.up.ac.za

Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

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Institution: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through June 30, 2025 and Expires 07/28/2026.

Faculty of Health Sciences

Faculty of Health Sciences **Research Ethics Committee**

17 May 2024

Approval Certificate
Annual Renewal

Dear Miss NP Dlamini,

Ethics Reference No.: 72/2023 – Line 2
Title: Factors associated with missed appointments among adults on antiretroviral therapy in the Uthukela district in KwaZulu-Natal, South Africa

The **Annual Renewal** as supported by documents received between 2024-04-12 and 2024-05-15 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2024-05-15 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Renewal of ethics approval is valid for 1 year, subsequent annual renewal will become due on 2025-05-17.
- The Research Ethics Committee (REC) must monitor your research continuously. To this end, you must submit as may be applicable for your kind of research:
  a) annual reports;
  b) reports requested *ad hoc* by the REC;
  c) all visitation and audit reports by a regulatory body (e.g. the HPCSA, FDA, SAHPRA) within 10 days of receiving one;
  d) all routine monitoring reports compiled by the Clinical Research Associate or Site Manager within 10 days of receiving one.
- The REC may select your research study for an audit or a site visitation by the REC.
- The REC may require that you make amendments and take corrective actions.
- The REC may suspend or withdraw approval.
- Please remember to use your protocol number (72/2023) on any documents or correspondence with the Research Ethics Committee regarding your research.

Ethics approval is subject to the following:

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

On behalf of the FHS REC, Dr R Sommers
MBChB, MMed (Int), MPharmMed, PhD
Deputy Chairperson *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

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Lefapha la Disaense tša Maphelo

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ANNEXURE J

LETTER FROM STATISTICIAN

© University of Pretoria

TLHALE CONSULTING & PROJECTS

www.tlhaleconsulting.co.za 079 083 0268 zenziejo@gmail.com

LETTER OF STATISTICAL SUPPORT

Factors Associated with Missed Appointments Among Adults on Anti-Retroviral Therapy in the Uthukela District in Kwazulu-Natal, South Africa

This letter confirms that Tlhale Consulting and Projects assisted Nomcebo P. Dlamini (u21705659), a Master's student in Advanced Community Nursing Science at the University of Pretoria, with statistical data analysis.

The study achieved a sample size of 104 (52 for each group) and survey data was captured in Microsoft Excel and coded, cleaned, and analysed using SPSS. Cronbach's Alpha was used to evaluate the internal consistency and reliability of the questionnaire. Exploratory data analysis was conducted to better understand the variables and their interrelationships, which also informed the selection of the relevant statistical tests for data analysis. The relationship between adherence and factors such as age, gender, and employment status was assessed using Chi-square tests. Additionally, the Mann-Whitney test was used to examine associations between adherence and predetermined patient-related and facility-related factors, comparing the distributions between the adherent and non-adherent groups for each factor at a 5% significance level.

Name: Tlhale Consulting and Projects

Signature: .....

Date: 15 May 2024

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ANNEXURE K

LETTER FROM TRANSLATOR

© University of Pretoria

Jabulani Cele

55 Surat Road
Hillside
LADYSMITH
3370
Phone: 084 452 6744/079 845 2657
Email: jabulanic15@gmail.com

To: Whom it may concern

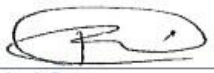
CONFIRMATION OF SUPPORT ON DATA COLLECTION TOOL

This letter serves as a confirmation that I have assisted Ms. Nomcebo Philile Dlamini (Student number: 21705659) in her study, titled: ***Factors associated with missed appointment among adults on Anti-Retroviral Therapy in the UThukela District of Kwazulu-Natal, South Africa.***

I have assisted her with translation of data collection instrument which is the questionnaire with 48 questions consisting of demographic selections and Likert scale questions, from English to isiZulu.

I speak isiZulu as the first language. I am a PHD candidate, second year student at The University of Zululand. I have experience in translating documents for independent Authors and Department of Health from English to isiZulu. I have translated press release articles and public speech for His Majesty The king of AmaZulu: King MisuZulu kaZwelithini Zulu. I am a published book author. I have more than 20 years' experience of writing and reciting poetry in isiZulu.

Yours faithfully



Jabulani Cele
Mr. Jabulani Cele
Ukuphawula akoni publishers
05/17/2024

Contact: 079 845 2657

Email: ukuphawulaakonipublishing@gmail.com

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ANNEXURE L

LETTER FROM EDITOR

© University of Pretoria

ZENEDIT professional services
05 Gwal Place,
10 Kudu Heights
Faerie Glen,
PTA, SA

26 June 2024

DECLARATION OF PROFESSIONAL EDIT

I declare that I have edited and proofread a Master's dissertation entitled: **FACTORS ASSOCIATED WITH MISSED APPOINTMENTS AMONG ADULTS ON ANTI-RETROVIRAL THERAPY IN THE UTHUKELA DISTRICT IN KWAZULU-NATAL, SOUTH AFRICA by Nomcebo Philile Dlamini.**

My involvement was restricted to language editing: contextual spelling, grammar, punctuation, unclear antecedent, wordiness, vocabulary enhancement, sentence structure and style, proofreading, sentence completeness, sentence rewriting, consistency, referencing style, editing of headings and captions. I did not do structural re-writing of the content. Kindly note that the manuscript was formatted as per agreement with the client.

No responsibility is taken for any occurrences of plagiarism, which may not be obvious to the editor. The client is responsible for ensuring that all sources are listed in the reference list/bibliography. The editor is not accountable for any changes made to this document by the author or any other party subsequent to my edit. The client is responsible for the quality and accuracy of the final submission/publication.

Sincerely,

PZENGELE

PhD Communication [Candidate]

MA Communication Science [Cum Laude]

BA Honours Communication Science

BA Humanities

Professional EDITORS Guild 30+ Est 1993
Promoting excellence in editing

Pholile Zengele
Associate Member

Membership number: ZEN001
Membership year: March 2024 to February 2025

076 103 4817
info@zenedit.co.za

www.editors.org.za

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