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Nurses' experiences in implementing Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) in primary health care facilities in Dr Ruth Segomotsi Mompati District, North West Province

Sibisi, Nthabiseng

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Nurses' experiences in implementing Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) in primary health care facilities in Dr Ruth Segomotsi Mompati District, North West Province

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg in partial fulfilment of the requirements for the degree of Master of Public Health, Rural Health

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Johannesburg, June 2023

DECLARATION

I, Petronella Nthabiseng Sibisi, declare that this research report is my own, unaided work. It is being submitted for the degree of Master of Public Health, Rural Health at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

Signature of candidate



Signed on this day…. 09th …. day of June……2023…at…Centurion

Ethics clearance number: M170971

ACKNOWLEDGEMENTS

I wish to acknowledge the Health District Management Team at the North West Department of Health especially at the Ruth Segomotsi Mompati District (Dr RSM) for granting me permission and access to the sub-districts and facilities to collect the data. I also wish to extend my gratitude to the nurses from the Primary Health Care facilities for participating in this study.

I would also like to give a special thanks to my supervisors: Prof Richard Cooke and Dr Motlatso Mlambo for their unfailing support and encouragement towards excellence.

I want to thank my dear friends, Priscilla, and Prof Joseph Divala, for the encouragement and taking care of my children when I needed time to write.

Finally, I wish to recognise the Rural Health Class of 2016 at Wits University especially, Priscilla, Samantha, Ann, Thompson and Nkagisang. As a team, we have embarked on a rare and beautiful journey in rural health advocacy.

DEDICATION

I dedicate this research study to my children, Kutlwano, Nkanyiso, and Unathi. Thank you for your love and support throughout my studies. I appreciate you.

To my parents, thank you.

ABSTRACT

Background

Nurses have been the bedrock of HIV policy implementation in South Africa and the world since the start of the HIV epidemic. Thus, researching on nurses' perceptions and experiences of their roles, as key service providers in the antiretroviral (ARV) roll-out, can inform the development of quality improvement initiatives within the health system.

Aim of study

This study aimed to explore the nurses' experiences in the implementation of NIMART in Dr Ruth Segomotsi Mompati District since its inception in 2010 to 2017.

Methods

This study employed an exploratory qualitative research design. The study setting included nine PHC facilities in three sub-districts. The study included only those nurses who had been trained to implement the NIMART in the district PHC facilities from 2010-2017. The final sample included Sixteen (16) nurses, comprising of three males and thirteen females from the three eight-hour operational clinics and six 24-hour Community Health Centres (CHCs). Data were therefore collected using in-depth interviews lasting thirty-five minutes (minimum) one and half hours 1h30 minutes (maximum). These interviews were guided by a semi-structured interview guide. Data were later transcribed verbatim using an electronic software O' Transcribe, and then analysed using MAXQDA 2018v, where inductive coding was applied. Thematic analysis was employed to interpret and represent data, which was finally presented as themes based on participants' dominant narratives.

Results

There were five key themes that emerged from this study. These included: perceptions about the NIMART programme mostly related to it being a task-shifting strategy when managing HIV and Aids and the programme benefits; contextual elements affecting access and adherence to NIMART, and challenges such as socio-cultural factors, social norms, socio-political and governance factors; facilitators of NIMART implementation in terms of functional health information management system and clinical guidelines, multidisciplinary team and skilled personnel, impactful counselling services, and intrinsic nurse motivators. Challenges of

NIMART implementation included insufficient human resources for health, services integration, poor management and health-service support systems, lack of capacity building, ART unavailability and poor patient compliance to ART, and nurse demotivation. The proposed interventions by the nurses included provision of training, increasing staff to curb workload, management support, and debriefing, health service support resources and patient support improvement.

Conclusion

Task-shifting and successful NIMART implementation are complex notions, which can be successful if accompanied by training, reorganisation of services, mentoring, supervision, and ongoing support from existing health-service system structures. The rural health context must be considered as unique, and policies should be tailored to suit the needs of rural healthcare workers and patients. Dr RSM district study has shown the plight of farm labourers and the need for a multisectoral approach to address patient related issues in this context. The challenges to successful NIMART implementation suggest a need for reorientation of health-services to fit rural contexts.

Keywords

Nurses, perceptions, experiences, implementation, Antiretroviral Therapy, NIMART, Rural

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ABBREVIATIONS

AIDS:	Acquired Immune Deficiency Syndrome
ART:	Antiretroviral therapy
CHC:	Community Health Centre
CPD:	Continuing Professional Development
CSO:	Civil Society Organisation
Dr RSM:	Dr Ruth Segomotsi Mompati district
DMT:	District Management Team
DHIS:	District Health Information System
DHS:	District Health System
HIC:	High Income Country
HIV:	Human Immunodeficiency Virus
HRH:	Human Resource for Health
KZN:	KwaZulu Natal
LMIC:	Low- and Middle-Income Countries
PHC:	Primary Health Care
NIMART:	Nurse Initiated Management of Antiretroviral Therapy
NSP:	National Strategic Plan
NMM:	Ngaka Modiri Molema
NWDoH:	North West Department of Health
NW:	North West Province
S A:	South Africa
SANAC:	South African National AIDS Council
SDGs:	Sustainable Development Goals

UCT:	The University of Cape Town
UTT:	Universal Test and Treat
UHC:	Universal Health Coverage
UNAIDS:	United Nations
MDGs:	Millennium Development Goals
NDoH:	National Department of Health
IMCI:	Integrated Management of Childhood Illnesses
LTFU:	Loss to follow up
PLWHIV:	People Living with HIV
SANC:	South African Nursing Council
STRETCH:	Streamlining Tasks and Roles to Expand Treatment and Care for HIV
OSD:	Occupation Specific Dispensation
NHLS:	National Health Laboratory Services
TROA:	Total Remaining on ART
WHO:	World Health Organization

Definition of Terms

Capacity building is the development of knowledge, skills, commitment, partnerships, structures, systems and leadership to enable effective health promotion actions (WHO, 2021).

CD 4 Count basically is a test measuring the count of CD4 cells in a blood sample. The normal count of CD4 cells is between 500 to 1500 per cubic millimetre of blood. Also referred to as T cells, CD4 cells fight infections, serving as critical defensive structures of the immune system (NDOH, 2010a).

Integrated Management of Childhood Illnesses is a systematic approach to children's health which focuses on the whole child (UNICEF, 2005).

Health education is any combination of learning experiences designed to help individuals and communities improve their health by increasing knowledge, influencing motivation, and improving health literacy (WHO, 2021).

Health outcomes considers a change in the health status of an individual, group or population that is attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status (WHO, 2021).

Primary health care (PHC) is an overall approach to the organization of health systems which encompasses the three aspects of: multisectoral policy and action to address the broader determinants of health; empowering individuals, families and communities; and meeting people's essential health needs throughout their lives (WHO, 2021).

PALSA PLUS / Primary Care 101 (PC 101) is a symptom-based integrated clinical management guideline using an algorithmic approach for the management of common symptoms and chronic conditions in adults. The guidelines are intended for use by all health care practitioners working at primary care level in South Africa (NDoH, 2015b).

Re-orienting health services concerns optimising fair access, putting people and communities at the centre, and strengthening the contribution that health services make to prevention, public health, and health promotion (WHO, 2021).

Resilience is processes and skills that result in good individual and community health outcomes in the face of negative events, serious threats, and hazards (WHO, 2021).

Rural-proofing is an approach to the development and review of government policy and strategic planning that recognises that the needs of rural areas and communities are different to those of their urban counterparts (Rural Health Advocacy Project, 2015).

Task shifting and **task sharing** are the rational redistribution of tasks between cadres of health workers with longer training and other cadres with shorter training, such as lay providers (WHO, 2021).

Universal Health Coverage means that all people have access to the health services they need, at high quality, when and where they need them, without financial hardship across the life course. It includes the full range of essential health services, from health promotion to prevention, treatment, rehabilitation and palliative care (WHO, 2021).

WHO Staging for adults sorts patients into one of four hierarchical clinical stages ranging from stage 1 (asymptomatic) to stage 4 (AIDS). Patients are assigned to a particular stage when they demonstrate at least one clinical condition in that stage's criteria. Patients remain at a higher stage after they recover from the clinical condition which placed them in that stage (NDOH, 2010a)

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CHAPTER ONE
INTRODUCTION

Nurses have been the bedrock of HIV policy implementation in South Africa, and also around the world since the start of the HIV epidemic (WHO, 2007, WHO, 2008, van Rensburg et al., 2008). This means, researching nurses' perceptions regarding their experiences, and roles, as key health-service providers in the antiretroviral (ARV) roll-out, can significantly help in the development, improvement, and provision of quality initiatives within the local health-care systems.

In this regard, a brief background on HIV/AIDS focusing on global, regional, and country epidemiology may provide a starting point for this research. Discussion of the programme outcomes in the form of ART uptake precedes consideration of the more process-related topics of task-sharing and decentralisation of the ART rollout. This decentralisation precipitated the development of nurse-initiated and management of ART (NIMART), the focus of this research study. The study is thus far, positioned alongside consideration of the experiences of nurses as implementers, as identified in the literature. Enablers and barriers to the nurse-initiated and management of ART (NIMART) are described, providing context to the specific aims and objectives of this study.

1.1 A global overview of the HIV pandemic

The HIV/AIDS pandemic remains a global health burden, with the Sub-Saharan Africa being the most largely affected. By the end of the year 2015, approximately 36.7 million people were living with HIV and AIDS worldwide. The African region alone constituted over 80% of half of the global HIV burden (UNAIDS, 2016). Furthermore, the Eastern and Southern Africa accounted for a staggering 19 million people who were living with HIV and AIDS, representing over half of the global burden, and the highest prevalence in all regions (UNAIDS, 2016). By the end of 2018, South Africa had approximately 7.7 million people living with HIV and AIDS, and this accounted for nearly 19% of the global burden (UNAIDS, 2018) .

Globally, the number of new HIV and AIDS infections has been gradually decreasing since 2005 due to the increased rollout of Anti-retroviral Therapy (ART) (UNAIDS, 2016). UNAIDS further report that, by the end of 2015, the number of new HIV infections was about 1.9 million compared to 2.5 million in 2005. Although there was reported decline in new infections in 2010

in the Central and Southern African region, still the region has continued to register new infections.

The concerning fact is that South Africa leads in the number of new HIV infections. For example, the country's new HIV infections had increased from 350 000 in 2010 to 380 000 by the end of 2015, and this was the case despite the scaling-up of; ART and various prevention strategies and interventions (WHO, 2010a, SANAC, 2011). Moreover, the highest prevalence rates were observed among those aged 15 years and older, and women accounted for 53% more than men of the same age group (UNAIDS, 2016). Likewise, the number of people receiving ART in the same period was 3 384 160, which was only 48% of ART coverage for people living with HIV/AIDS (PLWHIV/AIDS). In addition to this, AIDS-related deaths were estimated at 180 000 in 2015 compared to 390 000 in 2010 (UNAIDS, 2018). The downward trend in HIV/AIDS related deaths was mainly attributed to the increased life expectancy due to the upscale of Anti-retroviral therapy and improved nutrition.

In 2014, South Africa was earmarked for "fast track" status by the WHO, which targeted countries that accounted for 89% of all new HIV infections. Of these countries, twenty-eight (28) were categorised as Middle-Income Countries (MICs), and only two were in the High-Income countries (HICs) (UNAIDS, 2014), and together, these countries accounted for 89% of all new HIV infections globally. Under the "fast track" HIV/AIDS initiative, countries were required to maximise support towards HIV/AIDS interventions and be accountable to one another to reach a collective success in the fight against HIV/AIDS. Such success was envisaged to be measured through the reduction of new HIV infections to zero levels by the year 2030 (UNAIDS, 2014). Among the fast-track countries, South Africa had the largest ART programme, proportionate to HIV prevalence in the country. Equally, in South Africa, fighting HIV/AIDS has been an inter-sectoral collaboration exercise between the government, developmental partners, communities, and civil society organisations (CSOs). To realise the United Nations Millennium Development Goals (UNMDGs) 2001-2015 and the Sustainable Development Goals (SDGs) on universal access to quality health, South Africa developed the National Strategic Plan (NSP) for every five-year period since 2000. The NSP's broad goal was thus aimed at achieving universal access to ART, and the prevention of new infections (SANAC, 2011).

Importantly, South Africa's approaches to fighting HIV/AIDS have been evolving following changes in the administrations of state governance since 1994. Precisely, major breakthroughs

were made in 2009 when President Jacob Zuma announced access to ART for children under the age of five years, and pregnant women regardless of their CD4 count[1], and WHO stage[2] (NDOH, 2010a). This move was remarkable, compared to the 2004 ART Guidelines which stipulated that adults, including pregnant women, had to meet the following criteria in adults: CD4 <200 cells/mm3 irrespective of stage; OR WHO Stage IV AIDS-defining illness, irrespective of CD4 count; and patient expresses willingness and readiness to take ART adherently; and in children: recurrent hospitalisations (more than two admissions per year) for HIV-related disease, or prolonged hospitalisation (more than weeks); OR modified WHO Stage II or III disease; OR CD4 percentage less than 20% in a child under 18 months old, irrespective of disease stage; OR CD4 percentage less than 15% in a child over 18 months old, irrespective of disease stage (NDoH, 2004).

By 2014 the updated ART Guidelines mandated access to ART for adolescents and adults with CD4 count <350 cells/mm3 irrespective of WHO clinical stage; irrespective of CD4 count, all types of TB (In patients with TB/HIV drug resistant or sensitive; TB, including extra pulmonary TB); HIV positive women who are pregnant or breast feeding; patients with Cryptococcus meningitis or TB meningitis, and WHO stage 3 or 4 irrespective of CD4 count (Meintjies et al.,2014).

In 2015, South Africa adopted the UNAIDS' ambitious 90-90-90 Fast-Track strategy. The 90-90-90 Fast-Track strategy specifically proposed that, by the year 2020, 90% of the people living with HIV and AIDS (PLWHIV/AIDS) within all the WHO member states shall have been tested for them to know their HIV status. The strategy also proposed that 90% of those people who would test HIV positive, should be put on ART, and that 90% of patients on treatment should be virally suppressed. The overall aim was and has been to eradicate new infections by the year 2030 (UNAIDS, 2014).

The adoption of the 90-90-90 Fast-Track strategy thus saw South Africa implementing the Universal Test and Treat Policy (UTT), which instructed all healthcare workers to offer and initiate ART for people living with HIV and AIDS immediately, at the point of diagnosis,

[1] CD4 count basically is a test measuring the count of CD4 cells in a blood sample. The normal count of CD4 cells is between 500 to 1500 per cubic millimetre of blood. Also referred to as T cells, CD4 cells fight infections, serving as critical defensive structures of the immune system.

[2] The WHO system for adults sorts patients into one of four hierarchical clinical stages ranging from stage 1 (asymptomatic) to stage 4 (AIDS). Patients are assigned to a particular stage when they demonstrate at least one clinical condition in that stage's criteria. Patients remain at a higher stage after they recover from the clinical condition which placed them in that stage.

regardless of the WHO staging or CD4 count, as it was previously the common practice (NDOH, 2010a). Relative to this, UNAIDS (2018) reports that 98% of PLWHIV in South Africa had now known their status through the UTT; 62% of these PLWHIV were already on treatment, while 54% of the PLWHIV had their viral load suppressed. UNAIDS nevertheless observes that, while HIV case finding continued to yield positive results in the first 90, initiating ART to patients and achieving viral suppression (90-90) were still a challenge. UNAIDS further observes that between 2010 and 2018, AIDS related deaths had decreased by 51%, and that new infections had decreased by 61% in the same period. It further established that 87% of pregnant women were already accessing ART, hence protecting 53 000 infants from getting infected by HIV prenatally (UNAIDS, 2018).

1.2 A glance at the global Anti-retroviral therapy uptake

The growth of ARV programmes worldwide has been significant. By 2015 for example, out of a total of 36 million people living with HIV globally, over 18 million were receiving ART, a significant improvement from the 7 million people in 2010 (UNAIDS, 2016). This achievement is above the 15 million 2015 target set at the 2011 United Nations High Level Meeting on AIDS in June 2011, where the United Nations political declaration on HIV and AIDS was adopted (UNAIDS, 2016). Deaths caused by AIDS were 1.1 million in 2015, indicating a decline of 300 000 deaths from 2010 (UNAIDS, 2016). Therefore, ART programmes continued to reach milestones and increase the PLWHIV lifespan. Although there has been substantive decline in the global statistics globally, the Eastern and Southern African regions still accounts for the largest prevalence rates, and death rate in the world (UNAIDS, 2016). More so, by 2018, of the estimated 37. 9 million PLWHIV, about 23.3 million (61%) were already receiving ART (UNAIDS, 2018). This essentially means that some PLWHIV still have challenges with access to ARTs (ARVs).

1.3 Task-shifting in HIV management

Shortage of health care workers has been a threat to the successful management of HIV (WHO, 2008). Many strategies have been set before by countries based on UNAIDS priorities, and these have yielded some improvement in the HIV/AIDS epidemiology (WHO, 2010a). One such strategy has been task-shifting through the decentralisation of ART services (Uebel et al., 2011, WHO, 2008, WHO, 2007). Following this, the WHO launched the task-shifting project into the "train" aspect of the "treat, train and retain" strategy in 2007 in order to deal with healthcare workers structural and psychosocial challenges, which were affecting universal

coverage of ART (WHO, 2007). The Free State Province Streamlining Tasks and Roles to Expand Treatment and Care for HIV (STRETCH) trial project which was implemented from 2007-2010 proved that treating clients on ART at Primary Health Care (PHC) facilities was possible, and could yield good outcomes for patients and healthcare workers if there was support and health systems overhaul (Georgeu et al., 2012). This was a milestone in the ART programme that aimed to upscale ART through decentralisation and shift the implementation from doctors to nurses. It was also established that partnerships between Non-Governmental Organisations (NGOs) and the National Department of Health (NDoH) had contributed positively towards the sustainability of ART activities, and decreased the burden (WHO, 2008, Cameron et al., 2012a). To successfully effect task-shifting in South Africa, the Department of Health (DoH) and its stakeholders collaborated on strategies to implement. The first objective was thus to decentralise ART services to PHC, and to be nurse driven. Even then, these propositions came with them their own challenges.

1.4 Nurse Initiated Management of Anti-retroviral Therapy (NIMART)

In October 2010, the National Department of Health (NDOH) introduced NIMART training (NDOH, 2010a). This training came soon after the World AIDS Day on the 1st of December 2009 where President Zuma had directed that South Africa should roll out ART at a large-scale. This then required that nurses should be trained in HIV management at PHC level. NIMART training was thus aimed at capacitating professional nurses to manage PLWHIV at PHC facilities, and help relieve the burden from doctors in hospitals (Uebel et al., 2011, Georgeu et al., 2012). The training, which was mainly district supporting partner (DSP) driven involved five to ten days of offsite didactic training depending on the provincial preferences for the duration, followed by three to six months of onsite mentorship (NDOH, 2011a).

According to WHO requirements, clinical mentorship is a mandate which could ensure task-shifting, capacitation and support of nurses on an ongoing basis in order to scale up HIV care (Organization, 2006, NDOH, 2011a). Additionally, according to South Africa's 2011 Mentorship Manual for Integrated Services Manual, the NIMART trained nurses are required to be trained in Integrated Management of Childhood Illnesses (IMCI) and Practical Approach to Lung Health and HIV/AIDS (PALSA Plus)/ Primary Care 101 (PC 101) to be considered NIMART competent through certification (NDOH, 2011a). The NIMART mentorship process is followed by the certification of competency, which in turn licences the nurse the opportunity to initiate patients on ARVs.

1.5 Problem Statement

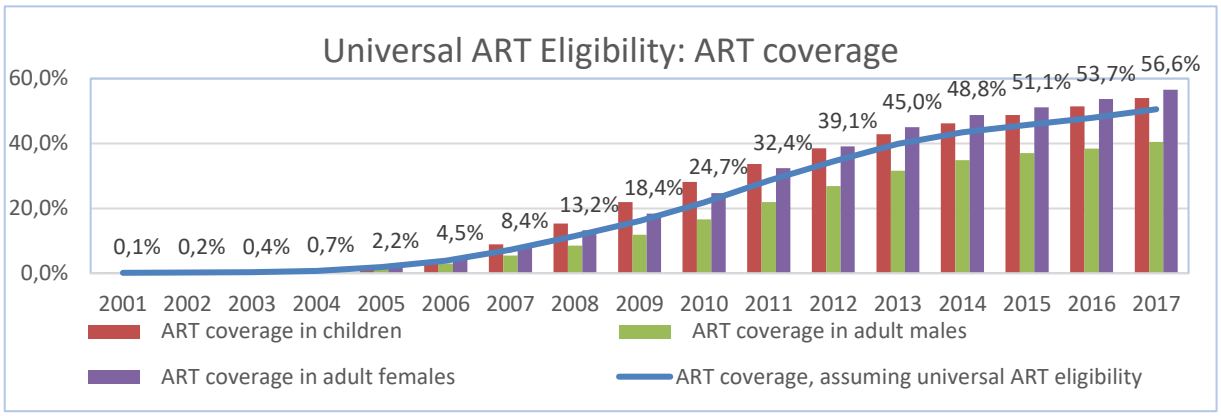


Figure 1.1: HIV through the decades in the North West Province Source: The Thembisa Model

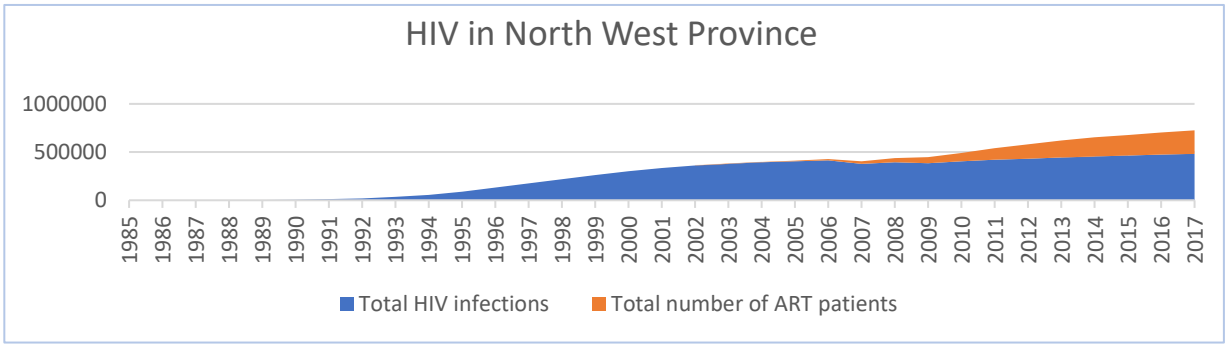


Figure 1.2: Universal ART coverage in the North West province over the years Source: The Thembisa Model

According to the Thembisa Model[3] Figure 1.1 above illustrates the HIV course and ART provision in the North West Province from 1985 to 2017. This data shows that there is a big gap in initiating ART for HIV positive patients. Despite the advancement of the HIV policy and updated guidelines which widened the eligibility criteria to start ART, ART coverage is still less than 60% in the North West province by the end of 2017.

Data based on age and sex disaggregation in Figure 1.2 shows that more women and children than men are being initiated on ART. Although ART uptake had increased tremendously from 2010 up to the implementation of UTT in 2017, still ART coverage is far from reaching the 90-90-90 (TTR) targets. Again, despite the decentralisation and task-shifting initiatives, ART coverage still has gaps across the demographics (for all genders/sex and ages). Thus, considering these realities, the researcher wanted to establish the contributions of the facilitators towards the rollout and implementation of NIMART, and the possible challenges

[3] Thembisa is a mathematical model of the South African HIV epidemic, designed to answer policy questions relating to HIV prevention and treatment. Thembisa is also a demographic projection model and a source of demographic statistics.

encountered. Moreover, some studies have showed that NIMART programme had experience poor implementation resulting into poor quality patient monitoring, which is contrary to the clinical guidelines despite nurses being trained and mentored(Mboweni and Makhado, 2019, Arnesen et al., 2017a).

Furthermore studies have also reported that nurses were faced with contextual factors, such as lack of resources, poor infrastructure, training, mentorship, managerial support and patient-related factors, which increased their frustration and stress in NIMART implementation (Davies et al., 2013, Arnesen et al., 2017a, Goudge et al., 2009, Mabelane et al., 2016). Nurses further reported lack of health systems' related enablers for NIMART implementation, such as management support and teamwork, effective placement in the healthcare facilities and motivation (Motlokoa, 2016).

Although the above evidence is anecdotal, from personal observation and experience, the researcher was part of the Rural Health Advocacy Project (RHAP) led community Imbizo in Ganyesa Village in the Kagisano Molopo Local Municipality in Dr Ruth Segomotsi Mompati (Dr RSM) District in 2016 (Rural Health Advocacy Project, 2016). At this Imbizo, the community members complained of poor staff attitudes, which indeed agreed with the above cited studies. They also cited shortage of staff and supplies, long-distances and waiting times; lack of knowledge on available health-service packages, and poor quality health-services at the PHC facilities (Arnesen et al., 2017b, Goudge et al., 2009).

1.6 Justification

There has been some studies on the success of NIMART implementation in general in some countries around the globe (Georgeu et al., 2012, Uebel et al., 2011, Nyasulu et al., 2012, Shumbusho et al., 2009, Cameron et al., 2012a, Jobson et al., 2017). However, few studies have been conducted on nurse's experiences on NIMART implementation in rural areas especially in South Africa (Davies et al., 2013, Mathibe et al., 2015, Mabelane et al., 2016, Uebel et al., 2011). Some of these studies had simply managed to use limited sample of rural facilities alongside urban facilities. For example, in 2015, Motlokoa conducted a qualitative study in Dr RSM district, which explored barriers and enablers experienced by nurses when completing the Portfolio of Evidence (POE) toward NIMART competency (Motlokoa, 2016, NDOH, 2011a). Unlike Motlokoa' s study, the current study sought to explore nurses' perceptions and experiences on NIMART implementation within their context. While other studies found similar challenges and enablers in NIMART implementation among healthcare workers in

urban areas (Mathibe et al., 2015, Georgeu et al., 2012, Davies et al., 2013), it is not clear if similar results would be obtained in rural areas. This is the reason this study sought to explore how professional nurses in rural Dr RSM District perceived and experienced the NIMART implementation within their rural contexts (Health Systems Trust, 2016, Eagar et al., 2014). The scanty evidence available on nurses' experiences in rural settings also prompted for more research to be conducted, especially with the ever-changing healthcare environment (NDOH, 2013, NDOH, 2011b); changing HIV management policy (SANAC, 2011, NDOH, 2015a), and how such policy changes could affect the implementation of NIMART in the rural settings.

Although there is no single definition for rurality (Hart et al., 2005, Muula, 2007, Couper, 2003), this study understands rurality through the lenses of rural index, which is analysed using four variables namely; the deprivation index, distance to the regional hospital and catchment population, as described and analysed by Eager *et al* (Eagar et al., 2014). In Dr RSM District, the majority of PHC facilities are more than seventy kilometres away from the regional hospital. Dr RSM District is the most deprived health facility in the province, falling under socio-economic quintile one (SEQ 1) according to the District Health Barometer 2015/16 classification (Massyn N et al., 2015/16). The population in Dr RSM district is small but sparsely situated over a large landmass of 43 700km² with approximately four persons per km² (Statistics South Africa, 2011b, The local government handbook A complete guide to municipalities in South Africa), which makes access to basic services a challenge. In addition, the majority of the PHC facilities in Dr RSM District are more than seventy kilometres away from the regional hospital. These characteristics indicate the challenges of access and referral in healthcare services for the communities of Dr RSM District. Articulating the rural index of Dr RSM District assisted the researcher in making context specific recommendations for the district (Couper, 2003).

Having heard from the healthcare service users' point of view during the community Imbizo, the researcher was inspired to explore nurse's experiences about NIMART implementation from their perspectives. Also, the researcher's previous work as a Clinical Trainer and NIMART mentor in this district exposed her to the successes and challenges of NIMART implementation in the rural context of Dr RSM District. This study therefore was envisaged that it would assist in proposing possible improvements and recommendations for quality health-services offerings.

1.7 Research question

What are the experiences and perceptions of nurses in implementing Nurse Initiated and Management of Anti-Retroviral (NIMART) therapy in Primary Health Care (PHC) facilities in Dr RSM District

1.8 Aim of study

To explore the nurses' experiences in the implementation of NIMART in Dr RSM District since its inception in 2010 to 2017.

1.9 Objectives

1. To explore the nurses' perceptions of the NIMART programme in Dr RSM District.
2. To explore the nurses' perceptions and experiences of factors facilitating and inhibiting the implementation of NIMART in rural Dr RSM District.
3. To make recommendations for NIMART quality improvement in Dr RSM District

1.10 Literature Review

1.10.1 Decentralisation of ART services in South Africa

Decentralisation of ART services to PHC has been noted as a successful task-shifting strategy (Uebel et al., 2011). The strategy brought about the introduction of Nurse Initiated Management of Anti-retroviral therapy (NIMART) training to prepare nurses to manage HIV/AIDS in the PHC setting (NDOH, 2010a, WHO, 2008, Uebel et al., 2011, Georgeu et al., 2012). Available studies have clearly demonstrated that nurses can manage HIV at PHC level, especially when supported and mentored properly (Georgeu et al., 2012, Green et al., 2014, Pham et al., 2017, Nyasulu et al., 2012).

Despite ART decentralisation and the ambitious 90-90-90 Fast-Track targets, there is still poor performance in the monitored indicators. For instance, according to the Thembisa Model (Johnson et al., 2017), the North West (NW) Province's ART uptake is still much less than the number of people living with HIV (PLWHIV). Furthermore, some of the factors affecting good performance are due to challenges experienced by nurses in the PHC setting. In many studies; for example, (Bedelu et al., 2007, Cameron et al., 2012a, Davies et al., 2013, Delobelle et al., 2009, George et al., 2010, Georgeu et al., 2012, Nyasulu et al., 2012, Makhado and Davhana-Maselesele, 2016), nurses have cited (i) contextual issues; (ii) health system issues; (iii) intrinsic issues; (iv) patient-related issues, and (v) facilitator-related issues that influence

NIMART implementation experiences. Some scholars, on the other hand, have cited factors such as healthcare access; lack of transport and high costs for patients; patient defaulting treatment; staff shortage; ART non-availability; inadequate training and mentoring, poor managerial support and minimal Non-Governmental Organisations' (NGOs) support as having negatively influenced NIMART implementation (Shumbusho et al., 2009, Davies et al., 2013, Nyasulu et al., 2012, Stinson et al., 2014, Mabelane et al., 2016, Mathibe et al., 2015, Cameron et al., 2012a, Jobson et al., 2019).

The studies have further demonstrated that nurses are unable to keep up with the latest developments in the programme due to a lack of ongoing capacitation and support. Many nurses have also reported human resource constraints as one of the factors that frustrates them in their day to day work routines (Davies et al., 2013). For instance, a study conducted in Khayelitsha in Cape Town showed that nurses resisted NIMART integration into maternity services because of the extra work it had added to the daily workload of the midwives (Stinson et al., 2014). Similarly, a study in Johannesburg also reported that nurses feel overwhelmed by the increased work due to integration, making their work environment stressful (Davies et al., 2013). There was evidence that a top-down approach of communication between management and facility staff added more confusion, hostility and stress among workers (Davies et al., 2013). This undermines the support that managers are supposed to provide to nurses in implementing NIMART initiatives. Moreover, another NIMART mentoring study in the Dr RSMD established that nurses were faced with numerous barriers in the implementation of this programme. For example, common barriers included lack of training towards NIMART competency, lack of human resources and facility disorganisation (Motlokoa, 2016).

1.10.2 Rural context influences on NIMART implementation

According to Couper (2003), there is no single definition for rurality, although lack of access to basic services has been found in most studies as a common variable when describing rural settings. Thus, lack of physical access to, or access to acceptable services for individuals and communities have been considered as key determinants of rurality discourses. Nurses have also reported access issues as impacting their NIMART implementation experience (Mabelane et al., 2016). For instance, where the PHC facility is available but takes long distance to get there, time wastage and transport costs have been recorded being barriers for patients to access the healthcare centres. Similarly barriers have existed in cases where the PHC facility is within

reach, but there are not enough qualified staff and/or inadequate medicines are available (Goudge et al., 2009). These factors have, in combination, often led to nurse frustration and poor patient outcomes. In the rural contexts, there are no adequate processes, support systems and resources that would help deal with these challenges (Cooke et al., 2011, Cleary et al., 2013).

- ***Access***

Access refers to the availability, affordability and acceptability of the services being rendered to the clients, users or beneficiaries of goods and services (McIntyre et al., 2009, Cooke et al., 2011). For instance, availability of PHC structures in the community; acceptable operating hours; sufficient staffing levels, and relevant skills for staff; comprehensive service package; patient satisfaction with the services; nurse attitudes, as well as affordability to access the services offered all constitute access and its variables (McIntyre et al., 2009). Although decentralisation brought ART services closer to communities, to achieve adequate coverage and quality, the much needed increase in resource allocation has not been achieved (Bedelu et al., 2007). For instance, while the referral hospital in Dr RSM District is seventy kilometres away from most community clinics, there are not enough doctors allocated to these clinics, and some nurses are not trained on NIMART. These realities have often led to loss on follow-up of patients due to difficulty in accessing healthcare facilities.

Dr RSM district is one of the ten rural impoverished districts in South Africa (Health Systems Trust, 2016). Geographic layout is the main factor hampering physical access in rural settings evidenced by long-distance to healthcare facilities, which requires high transportation costs as well as long travel time (Schneider, 2009) (Gaede and Versteeg, 2011). This then have often led to patients staying away from the clinics and opting for locally available and accessible alternatives to healthcare, which include traditional healers and private general health practitioners (GPs) (Moshabela et al., 2012). Eventually, these alternatives leave individuals with a high burden of costs that further impact on their livelihoods. Regarding this, a study conducted on healthcare access dimensions showed that affordability to access healthcare services was a notable barrier in the rural setting when compared with the availability and acceptability of services (Moshabela et al., 2012). It was reported that the poorest of the poor in two rural settings with the greatest health needs have often used healthcare services the least compared to other groups of higher economic status, mostly those residing in urban settings (Fatti et al., 2010). This finding can be attributed to physical access and transport costs.

In addition to physical access barriers, poor understanding of referral systems has often placed a great burden on the PHC facilities and patients alike. For example, the Thaba Nchu study, established that patients usually bypassed available PHC facilities because the district hospital was closer. The study further established that patients who were brought by ambulances to see doctors, did not often meet the referral criteria, and/or that they were not well received by nurses at the PHC facility (Mojaki et al., 2011). These factors have made patients migrate to other facilities in other provinces while searching for better and friendly services. The rural population is thus disadvantaged in health policy planning and resourcing, which then puts them at further risk for high morbidity and mortality rates due to inaccessible basic healthcare services (Harris et al., 2011b).

- ***Socio-cultural norms***

Rural communities are deeply rooted in their cultural practices, and they do expect nurses to take these into consideration when treating them. This means the use of local languages in the catchment areas need to be given ultimate consideration. People in rural areas believe in seeking help for illness from traditional healers (*Sangomas and Ngaka)* first, regardless of the high cost charged on such services (Moshabela et al., 2012). It is only when the traditional healers have advised them to seek biomedical services, will they go for clinical treatment in the health facilities. This essentially implies that people in rural areas trust the traditional healers much more than they do with the nurses in the PHC facilities. This trust is based on their cultural beliefs, values and a sense of belonging they experience when treated (Peltzer et al., 2008). These factors can then make nurses' work tedious when the patient reports to the clinic in the late stages of illness.

Equally, differences in factors such as age, gender, language, and ethnicity of the nurse may also influence acceptability of health services by community members (Arnesen et al., 2017b). For example, a study done in the Northern Cape established that patients had little involvement in decision making about their illness and care, which eventually made them feel isolated, hence non-adherence to treatment (Visagie and Schneider, 2014). It also argued that when patients feel misunderstood by nurses, they may end up being lost-to-follow up (LTFU) while opting for traditional healers where they usually feel accepted included, and welcomed as they share similar values and norms (Peltzer et al., 2008, Moshabela et al., 2016). In addition, acceptability is also influenced when patients feel respected by healthcare workers (Moshabela et al., 2012).

Access therefore cannot take place where there is no interplay between availability, affordability, and acceptability of health services. It is thus of no use to have decentralised ART service systems when the nurses are not skilled enough to provide NIMART. Equally so, the healthcare centre may be within reach and the nurse can be skilled, but health-workers' negative attitude towards patients could become a possible threat to service access. Likewise, physical availability of healthcare services may surpass affordability and acceptability requirements in rural areas (Schneider, 2009). Precisely, where there is no adequate access to ART service, universal coverage cannot be reached, and the burden of the disease will increase.

1.10.3 Health system factors influencing NIMART implementation

- ***The Universal Test and Treat Policy***

Decentralising the ART programme has made significant gains for the people living with HIV and AIDS (PLWHIV) in South Africa. Since September 2016, South Africa has been implementing a universal test and treat (UTT) policy as recommended by the WHO (NDoH, 2016). The objective of the UTT policy was to ensure universal ART coverage regardless of the eligibility criteria which was based on the CD4 count of the patients, and WHO staging as was the case before (NDOH, 2010a, NDOH, 2015a). Despite its success, UTT has placed a greater burden on the available human Resources for Health (HRH) since every client testing HIV positive must be initiated on ART instantly. Following this, frustration and job dissatisfaction has been largely reported as a negative effect of task-shifting and increased ART scale up (Iwu and Holzemer, 2014). The public health sector in South Africa has had minimum resources though it has to cater for 80% of the local and migrant population while the private health sector has more resources, it only caters for 20% of the whole population in SA (Stuckler et al., 2011). The addition of ART services to PHC level, in an already equity compromised health system, has since then led to health worker emigration from the public healthcare facilities to private healthcare (George et al., 2010, George et al., 2013).

The HIV policy has also had its positive outcomes when it comes to nurse experiences within the NIMART implementation. For example, a study done in the Western Cape and KwaZulu Natal (KZN) Provinces revealed that the ART programme did not have a serious negative impact on the HRH as claimed by other studies (George et al., 2010). Healthcare workers, for instance, uniquely reported having high work morale, job satisfaction, low stress and limited

illnesses and absenteeism. This was largely attributed to the eligibility criteria for starting ART which stipulated that patients must be put on ART at higher CD4 counts (NDOH, 2010a, NDOH, 2015a). This meant that patients were put on ART while relatively healthy, strong as their immunity was still strong. Putting patients on ART early before they become sick had hence led to decreased workload for the nurses (NDoH, 2016) (George et al., 2010, Plazy et al., 2017).

- ***NIMART training and competency (skills)***

Clinical mentoring has had positive effects on the nurses regardless of the initial fear that NIMART implementation would increase staff workload (Jobson et al., 2019). NIMART competency has mainly been influenced by mentor-mentee relationships, workload and service integration on the part of nurses (Motlokoa, 2016). Moreover, nurses have reported that while on NIMART training, they were not allowed to learn through practice, and that they were also not provided with additional pre-requisite courses such as IMCI and Palsa Plus/PC 101 (Motlokoa, 2016). Importantly, mentoring had always been disrupted by absenteeism, delegation to other tasks unrelated to ART and high workload (Jones and Cameron, 2017, Motlokoa, 2016, Cameron et al., 2012b). Indicators have further shown that the absence of a structured approach to training and NIMART implementation in some districts had led to poor patient outcomes (Mboweni and Makhado, 2020). Although there has been a structured global guideline (WHO, 2010a, WHO, 2008, Organization, 2006) to capacitate nurses to effectively implement NIMART, there are still challenges within the districts that make it hard for the nurses on the ground.

- ***Workload and staff shortage***

NIMART training and task-shifting have had a major impact on access to ART for PLWHIV. However, studies have identified workload, staff shortage and lack of job satisfaction as major challenges for nurses in NIMART implementation (Visser et al., 2018, Plazy et al., 2017, Pillay, 2009). Visser *et al.* further discovered that although NIMART implementation brought about good patient outcomes and satisfaction, nurses were still not satisfied with high workloads. Furthermore, a cross-sectional survey on nurses found out that public sector nurses were generally dissatisfied with their work context due to salary, workload and resource scarcity issues when compared with those in the private sector, and this was worse for rural-based nurses (Pillay, 2009).

In the health system, there are contextual factors that often influence implementation of acquired knowledge (Motlokoa, 2016, Mboweni and Makhado, 2019, Cooke et al., 2011, Mathibe et al., 2015). Additionally, the implementation of NIMART was also reported as being challenged by poor infrastructure, service integration, shortages of clinical stationery and documentation, lack of mentoring, and support after training(Mathibe et al., 2015, Fatti et al., 2010, Crowley and Mayers, 2015, Shihundla et al., 2016). Besides these, workload challenges, remuneration, and lack of support had always led to burnout, especially to those nurses working in rural areas (Dugani et al., 2018, Pillay, 2009). Despite these challenges, it has been left with the implementers to find their way out for dealing with excess workloads, as they have often been urged to be innovative; have a positive attitude to work; work in teams and communicate effectively in order to achieve a successful NIMART implementation (Davies et al., 2013).

- ***Health information management system challenges***

In South Africa, ART Programme uses the TIER.Net[4] information system, which records particulars of all patients enrolled on ART for purposes of monitoring and evaluation (UCT, 2011). However, prior to capturing of information into this system, patients' files need to be accurately documented using the ART clinical stationery. The ART clinical stationery is aligned with clinical guidelines and guides what is required to be done by the nurse. Where facilities lack this stationery, it becomes difficult for nurses to record clinical findings according to the clinical guidelines. Moreover, recording patients data in multiple sources such as patients' file and registers, has often led to various problems such as delays in consultation; increases in nurses' workload, and inaccurate information being recorded (Shihundla et al., 2016). Likewise, a study in Vhembe district of Limpopo Province, also found out that inaccurate and incomplete documentation of patients' information was due to increased workload and lack of adequate supply of clinical stationery to capture relevant information (Shihundla et al., 2016). Storage of patients' files, filing systems and records management in general had significantly also contributed towards loss of information and documentation because of lack of adequate infrastructure (Shihundla et al., 2016).

Since decision-making processes by managers mainly depend on clinical data in health facilities, then it becomes very difficult for these managers to make informed decisions in the absence of correct information and functional information systems. Accordingly, information

4 The **TIER**.**Net system** (previously known as the HIV electronic Register) captures data elements and resulting indicators (based on the WHO paper registers) required to monitor HIV and ART services.

officers who were interviewed in one study on the District Health Information System (DHIS), reported that there existed inaccurate analysis, interpretation, and use of incorrect data. The study observed that staff shortage had often led to data being captured and reported by untrained support staff such as counsellors who had limited expertise on health information management. Additionally, nurses have reported that lack of training for staff, and increasing staff shortages hugely affect appropriation of correct and accurate information documentation and capturing (Mabelane et al., 2016, Shihundla et al., 2016).

- ***Medicines availability challenges in South Africa***

When any health system is unable to plan and manage its budget expenditures, negative consequences will affect healthcare workers and the patients (El-Khatib and Richter, 2009, Hodes and Grimsrud, 2011). The Free State Province for example lost approximately thirty patients per day during the moratoria, which was as a result of staff shortages, poor management of funds, and lack of equipment (El-Khatib and Richter, 2009). Furthermore, a household survey conducted in a rural area in Agincourt, in the Mpumalanga Province, confirmed that owing to a shortage of medicines at local clinics, patients resorted to shopping drugs from nearby pharmacies for self-treatment (Goudge et al., 2009). Thus, failure by health systems to meet patients' needs had often led to them sharing or crossing provincial borders to access medication. This consequently had resulted into drug resistance and high-cost burden for patients. The constant shortage of certain drugs had also led to a change of regimens for patients, which may, in turn, lead to drug resistance (Hodes et al., 2017).

Equally, poor supply chain management, lack of accountability and corruption had also led to devastating drug stock-outs countrywide, as reported in the 2012 NGO report (Bateman, 2013). Interestingly, all departments of health blamed each other for poor accountability, which they argued had led to many patients not getting treatment, and healthcare workers being more frustrated and helpless. Simply put, drug ordering and supply guidelines were not adhered to as argued by Venter: *"A clinic manager had 2 000 patients on treatment, while the depot reported enough drugs for only 1 000. Meanwhile, another clinic got supplies for 3 000 patients – when they had only ordered for* 1 000" (Bateman, 2013)

This extract demonstrates that there was lack of understanding of the supply chain from top to bottom and vice-versa and having no accountability by senior managers. Similarly, the responses from frontline healthcare workers had also affirmed that there were severe drug shortages in the hospitals. More than often, nurses have their own internal communication, and

end up borrowing drugs from nearby facilities, and sometimes they use their own transport to get these drugs just to help the patients (Hodes et al., 2017). In addition, during drug stock-outs, nurses have often increased patient facility visits for medicine collection until when they have enough drug stock to issue for a whole month again (Mori and Owenya, 2014). The coping mechanisms during drug shortages are indeed informal; function outside the supply chain management structures, and have sometimes led to frustration for both nurses and patients when such plans fails (Hodes et al., 2017).

- ***Laboratory services challenges***

A functional laboratory system is needed to manage HIV and AIDS related cases, as it aids diagnostics and monitoring of clinical outcomes. Nevertheless, resource constrained settings often struggle to meet this need (Nkengasong, 2009) South Africa has a centralised National Health Laboratory Services (NHLS), which is responsible for diagnostics in the public health sector. However, poor laboratory infrastructure, lack of human resources, equipment and inadequate transportation of specimens are the common challenges affecting low and middle income countries (LMIC) such as South Africa (Stevens and Marshall, 2010b). Likewise, a review in Tanzania showed that although the laboratory services were available, there were reports on poor capacity of staff, and lack of coordination at primary health-care level (Mboera et al., 2015). Thus, the turn-around time for test results; receiving results via text, phone and/or internet, and unreliable transportation of specimen had all negatively impacted on the time for patients treatment, hence leading to frustrations among frontline healthcare workers (Engel et al., 2015).

- ***Referral systems' challenges***

Referral systems and pathways are well designed, although their implementation is often challenging. At PHC level, nurses and patients alike, have complained about poor services at the referral facilities; transport challenges; long waiting times, and lack of back-referral information (Visagie and Schneider, 2014). Owing to lack of faith by patients in the referring site, patients have usually opted for non-referral hence risking loss of life due severity of sicknesses. This is the case because nurses and doctors in the referral centres are perceived as having limited skills to help the patients satisfactorily and/or these patients simply avoid logistical challenges and bottlenecks associated with the referral system. Furthermore, the ambulance services are poorly regulated and utilised, leading to increased dissatisfaction and frustration among patients and nurses. This is mainly the case since the ambulances are often

used for non-emergency cases leading to adverse events that could have been avoided (Visagie and Schneider, 2014).

- ***Healthcare financing challenges***

The Alma Ata Declaration states that health is a human right and that all persons must access it, irrespective of the existing inequalities among the different economies and peoples (World Health Organization, 1978). In order to achieve universal health coverage (UHC), the WHO called on its member states to develop adequate healthcare financing systems to benefit both the providers and users of healthcare services (WHO, 2010b). Even then, the South African Government had inherited a system which was marred by inequality from the Apartheid government. Although some gains have been made since the introduction of free PHC services in 1994, as of 2010, there were still existing inequalities in resource allocation between private and public health sectors, and urban and rural settings (Harrison, 2009, McIntyre and Thiede, 2007).

Currently, in South Africa, the provinces which are largely rural and poor today were also formerly poor, excluded, and home to all Black people. These rural areas also suffer from previous and present inequalities on budget allocation in the health department. Related to this, a study conducted on healthcare spending found that resource allocation in provinces was less considerate of the disease burden than the existing infrastructure and capacity (Stuckler et al., 2011). Unlike in education where schools are divided according to quintiles one to five, and quintiles one to three receives more resources than those in quintiles four and five which are considered advantaged, in health the government employs a blanket approach to health spending despite differentiated increased contextual needs of rural settings. Consequently, rural healthcare workers and populations continue to suffer the most because of inequitable budget allocations and healthcare expenditure.

Over the years, South Africa has developed well-tailored policy on financial incentives such as the Occupation Specific Dispensation (OSD) and Rural Allowance to attract, motivate and retain healthcare workers in the public sector (NDoH, 2010c, Council, 2004). However, such financial incentives have been poorly informed when decisions were made at the top level and have left other health–workers' categories feeling frustrated. The rural allowance incentive, according to regulation 02 of 2004, indicates that doctors and dentists were to receive 22% while nurses would receive 12%. These disparities have caused dissatisfaction and division among staff, leading to migration from the rural to urban healthcare facilities.(Ditlopo et al.,

2011b). Government nonetheless has not carefully considered the criticality of rural healthcare workers' needs, contexts and other pestering issues which could potentially impact on the implementation of these incentives (Ditlopo et al., 2013, Blaauw et al., 2010). In addition, the inequitable expenditure on Human Resources for Health (HRH) and other services between public and private sectors, and/or urban and rural settings is a major factor for HRH brain-drain emanating from health-workers' dissatisfaction (Cooke et al., 2011). Studies have also shown that money was not a major driver to nurses' brain-drain, but rather the poor working conditions, and their needs being unmet. For example, jobs for spouses; schools for their children, and the need for efficient and accessible transport systems, prestigious malls, gyms and commodities were also part of the problem (George et al., 2013, Versteeg et al., 2013). This evidence proves that when healthcare workers are dissatisfied working in the rural areas, staff emigration, attrition and shortage will occur, leading to poor service delivery of the PHC package of services which includes NIMART.

- ***Management support***

The District Health System (DHS) is the design of the South African public health system in which the PHC is the backbone of service delivery closer to people (Nicholson et al.). Each district oversees its own sub-districts and healthcare facilities through District Management Teams (DMTs). This in turn allows the management and communities to interact and participate in decision-making processes around the health services rendered. More so, supervision in nursing is critical as PHC facilities are locally supervised by operational managers who are part of the management teams. However, the facility managers are often not formally trained for the management and leadership roles of health-centres and PHC facilities, and yet they are expected to be accountable and function within the context of scarce resources and low staff morale (Nyikuri et al., 2015). Nyikuri and his colleagues reports that similar experiences were also reported in Kenya. Similarly, a 2005 cross-sectional study found out that reasons for high staff turnover among nurses in rural areas were mainly due to job dissatisfaction due to poor supervision, and poor working conditions as compared to monetary incentives and collegial teamwork (Delobelle et al., 2011). This shows that where leadership is lacking, staff morale will be compromised, hence leading to poor staff attrition.

- ***HIV integration into other PHC services***

NIMART is not a standalone PHC service, it is integrated into other treatment modalities, such as Tuberculosis (TB) and antenatal care. To effect smooth integration and improved patient

clinical outcomes, SA has various NDoH approved clinical guidelines in place that promote service integration at PHC level (NDOH, 2015a, NDOH, 2010a, NDoH, 2010b). However, nurses have cited organisational, patient related and motivation issues as being main challenges barring them from adhering to clinical guidelines (Makhado et al., 2018). Staff shortages and long waiting times spent by patients during consultations have also conflicted with the available guidelines, and sometimes these guidelines are not available or are inaccessible hence leading to nurse frustration. Furthermore, while service integration has positive contributions towards patients; for example, decreased stigmatisation, increased privacy and access to comprehensive services for nurses, it still has been reported as challenging in terms of workload, time spent with a patient, and lack of equipment to deliver the comprehensive services required (Mathibe et al., 2015). System challenges thus frustrate nurses further to seamlessly manage HIV/AIDS cases at the PHC level, and these poses negatively impact on the attainment of the 90-90-90 targets.

- ***Patient retention in care challenges***

Many health system and patient related factors do affect retention of ART patients. For example, labour migration, lack of healthcare access and patients' lack of information about transfer procedures to other facilities, and nurses non-compliance to ART guidelines are some of the challenges (Mboweni and Makhado, 2019). Moreover, a study on the impact of NIMART training in the North West (NW) Province revealed that there were poor performance indicators such as Total Remaining on ART (TROA) and loss to follow-up (LTFU) despite 75% of nurses being trained on the NIMART guidelines (Mboweni and Makhado, 2019). In another study it was established that male patients with low CD4 count and on ART for less than 24 months appeared to have discontinued the treatment and could not be traced any further (Arnesen et al., 2017a). This might be the case due to urban migration or death, and even male denialism of the HIV diagnosis. In addition, children from rural settings and attending facilities in urban areas were found to have poor clinical outcomes and LTFU. This also was attributed to issues of transport costs for rural populations to access healthcare systems (Fatti et al., 2010). Also, in rural areas, young children are often left behind with the elderly who are often not disclosed to about the HIV status of the child and the need for ART continuity. The inability of the PHC facilities to retain PLWHIV has indeed negatively affected the attainment of the 90-90-90 indicators. Other than these, psychosocial factors such as non-disclosure, stigma, fear of rejection and dependence on men for basic needs have equally led women to LTFU. In

Tanzania for example, pregnant women would not restart ART after option B-plus for fear of rejection, which led to LTFU in the end (Sariah et al., 2019).

1.10.4 Perceived patient related factors

- ***Labour migration challenges***

The poverty stricken (Quintle1) districts tend to experience high unemployment rates (Massyn et al., 2016). This justifies high labour migration to bigger cities and farms in other provinces, to generate income (Collinson et al., 2009). However, migration has been found to be one of the key factors linked to ill health, poor clinical outcomes, high morbidity and mortality (Clark et al., 2007). A systemic review of twenty-nine studies conducted between 2000 and 2017 showed that there was a strong link between migration and risky sexual behaviours (Dzomba et al., 2019). Furthermore, some studies conducted in a rural Bushbuckridge have showed that labour migrants contract HIV in the cities, and then return home to spread the virus and or die, and this burdens the already poor families as well as the under-resourced health-systems of rural areas (Clark et al., 2007, Collinson et al., 2006).

Another dynamic to labour migration is the inability of rural women to discuss HIV/AIDs issues with their male counterparts. A study in Nepal, for example, showed that although women were knowledgeable about HIV/AIDS and its associated risks, they were unable to engage in HIV related discourses with their husbands, further exposing them to the risk of contracting HIV (Aryal et al., 2016). Furthermore, women in a rural setting such as those of South Africa have reported of fears of being labelled HIV positive whenever they try to negotiate for condom use with their spouses (Madiba and Ngwenya, 2017). The gender power dynamics can thus be observed in HIV acquisition patterns for migrant men and women. For instance, the study in rural uMkhanyakude in KZN showed that migrant men had a higher risk of HIV/AIDS acquisition than women, even when the destinations and time spent away from home were short. Gender inequality and the culture of patriarchy have also exposed rural women to HIV/AIDS hence leading to the inability to disclose their HIV status to their male partners (Klaas et al., 2018). In the main, the factors discussed above have led to non-disclosure for fear of stigma and victimisation, resulting into treatment non-adherence, loss of follow-up, and poor indicator performance for the PHC facilities.

1.10.5 Nurse motivation challenges

According to the scope of practice of nurses, their duty is to care and advocate for their patients. However, sometimes this task becomes unbearable for the nurses given the shortage of staff and resources (Mathibe et al., 2015, Davies et al., 2013, Hodes et al., 2017). In addition, professional nurses remain accountable for every action and omission at PHC level. Regarding this, a study conducted in Limpopo Province showed a higher level of burnout among professional nurses compared to other lower category nurses (Makhado and Davhana-Maselesele, 2016). In South Africa for instance, a systematic review of factors leading to burnout in LMIC has confirmed that the impact of health system challenges on the nurses had the highest level of emotional exhaustion and depersonalisation due to workplace stress, high workload, time pressure and lack of organisational support (Dugani et al., 2018). Furthermore, South Africa's rural nurses had the highest prevalence of stress unlike in Iran. This finding has been attributed to resource shortages and context with LMICs.

Working in a clinic of choice, being too tired to work while on duty, lack of security and abuse from patients have also been found to be markers of job satisfaction among nurses (Munyewende et al., 2014). Thus, the private/public health sector disparities also play a role as reported by Pillay (2009). In this study, Pillay, established that public sector nurses are more dissatisfied with their salaries; their workload and resource shortages as opposed to private healthcare nurses who only complained of lack of career path, growth and low salaries (Pillay, 2009). Beyond this, Pillay also established that lack of managerial support and career growth had also led to increased work dissatisfaction, and forced nurses to leave the PHC environment (Pillay, 2009, Halcomb et al., 2018). Likewise Munyewende *et al.* had confirmed that nurses' dissatisfaction with work were found to increase as they get older and this led to seeking early retirement (Munyewende et al., 2014).

Despite the availability of such negative factors leading to burnout, nurses have also been reported to have some positive motivation to keep serving the patients and the community out of humanity. Nurses in rural settings have also at times been reported to have been socially satisfied and motivated with their work (Pillay, 2009). Pillay concluded that nurses were more satisfied whenever they felt their efforts were being appreciated by the communities they served. Moreover, teamwork and positive relationships with colleagues had also been cited as increasing the motivations of public health sector nurses despite the challenges they faced everyday (Eyles et al., 2015).

SUMMARY

Chapter one has outlined global issues surrounding HIV/AIDS, and the recommended response from the WHO and different countries. NIMART as a task-shifting strategy to decentralised ART management to PHC facilities and the nurses' experiences have been interrogated. Performance indicators have been highlighted to measure the impact of NIMART training in the North West Province (NWP). Poor indicator performance has also been discussed within the NWP context to establish causes of poor performance. These causes have then been linked to issues that affect nurses in implementation of NIMART. The researcher has also explained the motivation behind this study, and its rural context especially at the Dr RSM district in the NWP to unearth the challenges the rural nurses faced in the management of HIV/AIDS, in order to help guide health-workers and policy makers formulate policies that account for rural context realities.

Importantly, the literature review section discussed the experiences of nurses at PHC level across the world with a particular focus on the rural settings of South Africa. A discussion on each component of the health system, patient related factors and context, and how these influence nurses' outputs in facilities were provided. The section also discussed issues of access (availability, affordability, accessibility), quality, and safety for better health outcomes, and the challenges nurses face. Key challenges such as inadequate human resources, high workload, poor leadership, and inadequate financing, which negatively impact influence the nurses' work were flagged out. The chapter also highlighted some positive experiences nurses have had within the implementation of NIMART in other parts of the world as well other provinces of South Africa. The preliminary findings from the reviewed literature demonstrated that policy formulation on NIMART ignored contextual needs of the rural areas and nurse voice hence compromising the success of this programme.

The coming Chapter (Chapter Two) presents the research methodology that was used to solicit views from the nurses on their experiences and perception regarding the NIMART programme, its challenges and what could be done to improve it.

CHAPTER TWO
METHODOLOGY

2.1 INTRODUCTION

This chapter discusses the step-by-step processes that were followed in answering the research question and achieving the study objectives. The details on how this study was carried out from the employed research design until fieldwork are discussed. The chapter further outlines the description of the study setting, sampling, data collection tools and analysis.

2.2 Study design

A study design is the approach researchers select to answer the research question. It informs sampling, data collection and analysis (Hennink et al., 2011b). To answer the research question on the experiences and perceptions of nurses in implementing NIMART in the Dr RSM district, a qualitative exploratory research design was chosen. One key feature of this qualitative approach is that it explores and examines the details of the experiences and views that are expressed from the participants' personal and contextual perspectives. The researcher's role is to seek an understanding of the meaning and interpret what will be said (Hennink et al., 2011b) .

Qualitative research approach is located within the interpretive research paradigm and in this study it was used to understand the meaning of the participant's subjective experiences (Hennink et al., 2011b). Utilising this approach allowed the researcher to understand how participants, from their perspectives, experienced the implementation of NIMART in their unique contexts. The interesting fact about the physical context of Dr RSM district is that, it is rural, and that the researcher was curious about how rurality (Hart et al., 2005, Rural Health Advocacy Project, 2014) would influences the nurse's experiences in NIMART implementation. The qualitative method was used to generate hypotheses for future research, and to get a deeper understanding of the problem, which quantitative methods cannot achieve.

2.3 Study setting

This study was conducted in Dr RSM district in the North West Province (NWP). The map below displays its sub-districts; from which three were selected for the study:

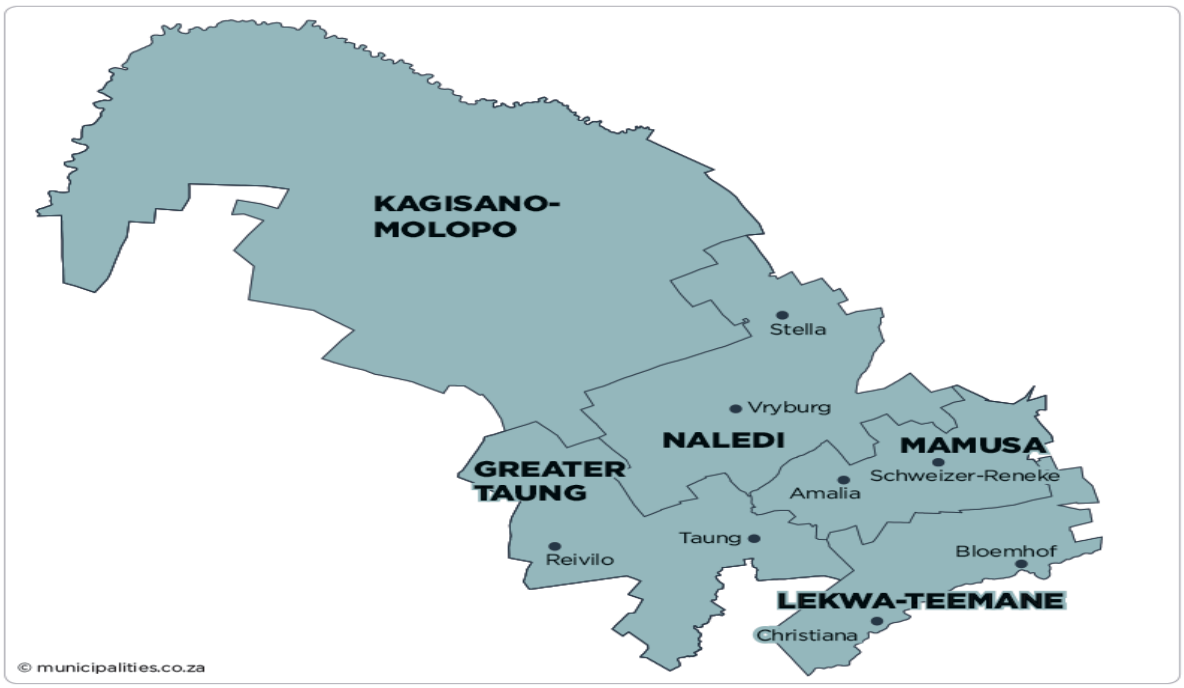


Figure 1.1 Dr Ruth Segomotsi Mompati District Municipality (DC39)

Source:[*https://municipalities.co.za/map/141/dr-ruth-segomotsi-mompati-district-municipality*](https://municipalities.co.za/map/141/dr-ruth-segomotsi-mompati-district-municipality)

Dr RSM district is one of the nine most deprived districts in South Africa Six provinces, consisting of five sub-districts, namely; Kagisano Molopo, Greater Taung, Naledi, Mamusa and Lekwa Teemane (Government, 2017). It consists mainly of villages which are surrounded by farms and people with no education, and low level of education work on these farms. Dr RSM district was specially selected for this study because of its rural nature.

Among all the three sub-districts, the Greater Taung is the most sparsely populated, with 177 642 persons in a landmass of 5 639km² and has the most PHC facilities (28 in total) in four local health areas (LHAs). Most of the facilities are at a distance more than 10 km away from the district hospital, and more than 70 km from the regional hospital. The Greater Taung has 106 scattered villages compared to other sub-districts within the district.

Naledi sub-district is geographically large, covering 7 258 km² of land, and has a population of 66 781. However, it only has four PHC facilities that make up one LHA and a regional hospital which is situated less than 5 km from three PHC facilities. The facility furthest from the regional hospital is about away and caters mainly for patients in farms such as Stella town, a farming hub of Dr RSM district. Also, Naledi sub-district is situated in the town of Vryburg, popularly known as *"the Texas of SA*" (Statistics South Africa, 2011a) because of its large scale

cattle breeding and agricultural activities. The town also made it easy for the researcher to access facilities.

Lekwa Teemane sub-district is a farming area with high emigration of people to work in the Northern Cape vineyards and is the smallest with a landmass of 3 681 km² and has a population of about 53 248 persons. It also has five PHC facilities that were easy to access for the researcher. The main national route, the N12 stretches from main cities to connect with Kimberley and Cape Town, and it passes through this sub-district, resulting in high migration of people.

The researcher purposively selected three PHC facilities in the three Sub-districts to invite participants from as follows:

Table 2.1: Selected study facilities

Sub-district	**PHC Facilities**
Greater Taung Sub-district	Manthe CHC Reivilo CHC Kgomotso clinic
Naledi Sub-district	Huhudi CHC Stella CHC Colridge Clinic
Lekwa- Teemane Sub-district	Utlwanang CHC Bloemhof CHC Coverdale Clinic

The three sub-districts were chosen due to their different characteristics as these would facilitate the presentation of a variety of views from participants, because of their differentiated geographic locations. This study employed a purposive sampling method wherein the researcher was able to target certain facilities because of their uniqueness, and richness of data that could emerge from them. For example, purposely selecting a PHC facility which is situated in a small farming community 70 km away from the district hospital to gain certain insights on nurses' experiences in the implementation of NIMART, was considered ideal for this study. Six Community Health Centres (CHCs) and three clinics were selected, making a total of nine facilities. Each sub-district had two CHCs and one clinic selected. In the PHC system, the clinics are the first point of care, and they function eight hours a day whereas the CHCs are the

secondary and offer 24-hour maternity services, emergency care, casualty, and a short stay ward respectively. The CHC can also be used as first point of care and refer a patient to a District hospital whenever necessary. The facilities mainly service the surrounding villages and farm communities which are generally poor, and highly migrant for employment.

2.4 Study population

A study population is an accessible subset of the entire target population from which a sample can easily be drawn. The study population is described in terms of the characteristics the nurses have in common, such as , place of work, the NIMART course attended as well as the period of implementation of NIMART in the district (Hennink et al., 2011b). Defining the study population helped the researcher to generate valid and generalisable results through the employment of rigorous and specific inclusion and exclusion criteria. These criteria included study population of all the professional nurses who were trained on NIMART and were implementing NIMART in the Dr RSM district PHC facilities from 2010 to 2017. According to the Regional Training Centre's (RTC) database, by the end of 2017, Dr RSM district had one hundred nurses who were trained on NIMART at the PHC facilities. The sample for this study was generated from this population of nurses.

2.4.1 Inclusion criteria

The inclusion criteria involved the key characteristics of the study population the researcher was interested in (Patino and Ferreira, 2018, Hennink et al., 2011a). For this study, the participants who were included were nurses who had been trained on NIMART and were implementing it in the Dr RSM district PHC facilities since its inception in 2010. The nurses were those who were working in Naledi, Lekwa-Teemane and Greater Taung sub-districts PHC facilities. The researcher was only interested in the experiences of nurses on the implementation of NIMART in Dr RSM district. This included nurses who started working in the Dr RSM district PHC facilities anytime between the periods of 2010 to 2017 since they would be able to provide a substantial data on their NIMART experiences specific to Dr RSM district due to their work experience in the context. The reason for the interest in nurses working in the district from 2010 to 2017 was also because data was supposed to be collected in February 2018, however, due to delays in protocol approvals, the date was shifted to July 2018. The inclusion criteria were also based on the fact that the NIMART training programme was rolled out in 2010, thereafter the professional nurses were required to implement NIMART

under mentorship by certified District Supporting Partner (DSP) mentors. The mentoring and certification were facilitated by the RTC in collaboration with the DSP.

2.4.2 Exclusion criteria

Professional nurses who were newly appointed from January 2018 were excluded from the study, regardless of them having been trained and had implemented NIMART elsewhere. The reason for this exclusion was to avoid information bias (Guba, 1981), as nurses could have referred to their NIMART experiences from where they had previously implemented it before but not from the current study context (Patino and Ferreira, 2018). In addition, since data was collected in July 2018, the nurse's appointment in January of that year and the data collection period would be too short to yield much needed information on the nurse's experiences of NIMART implementation within the Dr RSM context.

2.5 Sampling

Purposive sampling of participants was used, and the sample size was determined by data saturation. Purposive sampling allowed the researcher to access the subset of nurses that met the inclusion criteria (G and Ehrlich, 2007). The final sample included sixteen nurses, both male and female from the three operational clinics and six-hour operational Community Health Centres (CHCs). Their ages ranged between 28 and 56 years, and had a NIMART implementation experience of 03 to 08 years within the district. This study aimed to interview approximately two nurses per PHC facility in a total of eighteen participants. However, in qualitative research, the size of the final sample depends on data saturation (Ehrlich and Joubert, 2014) In the case where saturation was not reached after interviewing two nurses per facility, recruitments and interviews were going to continue. Similarly, if saturation was reached during data collection, the interviews were stopped. At the end, all facilities were reached, although not all the participants could be available for the interviews. Data collection took place until a saturation point was reached with participant 16.

2.5.1 Participant selection

In selecting the participants, the researcher obtained a list of NIMART trained nurses who met the inclusion criteria from the purposively selected facilities from the acting Regional Training Centre (RTC) manager. The purposively selected facilities had unique differences such as land and population size; distance from the district, and regional hospitals; socio-economic status and migration trends.

All the sub-districts had nurses who were trained on NIMART mostly by the researcher. Considering the researcher's previous role, she actively applied reflexivity to avoid bias. Before each interview, the researcher briefly reflected with the participant on her prior knowledge and experience of the context, and her current outsider role. However, she actively encouraged the participants to share their experiences and perceptions freely, without the influence of knowledge of the researcher, or the presumption that the researcher already knew their experiences in the context.

In addition, the sub-districts and clinics were selected because they were easily accessible by the researcher. Dr RSM district is geographically vast and travelling may have impacted the project time and resources if the entire district was to be sampled. The researcher purposively selected three PHC facilities from each sub-district (making a total of nine) to sample the study population. The facility managers in those sites identified and confirmed with the researcher the nurses who met the inclusion criteria. The researcher contacted the nurses meeting the inclusion criteria and invited them to participate in the study. Subsequently, the information about the study was shared, and appointments were set for interviews.

2.6 Data collection

Data were collected between June and July 2018 from sixteen participants in the nine PHC facilities. Two participants from the eighth and fourteenth facilities respectively could not be interviewed due to personal issues. Data collection took place until a saturation point was reached with participant 16. Eventually, all the selected facilities were reached and at least one participant per facility was interviewed. Therefore, two nurses who could not attend the interview did not make a difference at this stage.

When collecting data, the researcher met the participants on the telephonically set appointment dates and times, at the space of their own choice. For example, consideration was given to places such as at home or at the facility in a private space where privacy could be maintained with limited noise levels. Each participant was given the study information sheet (Appendix 1), after which consent (Appendix 2) to be interviewed and audio recorded (Appendix 3) was obtained before data collection. The audio recording of the interviews was done to conduct effective interviews and to collect accurate data. To ensure confidentiality and protect participant views, the interviews were conducted in a private room identified by the participant at and outside the facility- whichever the participant felt comfortable with. In addition, the

researcher allocated codes as identifiers, such as ("P1", "P2") to participants during the audio recording process of the interviews to protect their real identity.

Data were collected using in-depth interviews which were 1 hour 36 minutes on average duration using an interview guide (Appendix 4). In-depth interviews were also interactive between the researcher and the participant and allowed for the freedom to redirect the flow, to enable subjects freely express their views in a comfortable environment (Ulin et al., 2004). The interviews were conducted in the English language; however, the participants were allowed to use minimal Setswana and Afrikaans for better expression. The translation was done from Setswana/Afrikaans to English during transcription because the researcher was well conversant with these two languages. An interview guide containing three key questions and probes was also used to guide the flow of the interview. The key questions focused on exploring the nurses' understanding; their perceptions, and their experiences on factors facilitating and inhibiting implementation of the NIMART programme from its inception in 2010 up to 2017 in the rural Dr RSM district PHC facilities. Lastly, nurses were asked for the recommendations for quality improvement of NIMART in the rural Dr RSM district setting. The researcher was trained on using the O'Transcribe transcription tool and started transcribing after the sixteenth interview.

The semi-structured nature of the interview guide allowed for further probing of the key questions during the interviews. Because this was a qualitative study, the semi-structured interview guide served only as a guide for the researcher to succinctly cover the key questions that would help answer the study objectives. In addition, it allowed the participants to openly tell their stories and experiences from their own perspectives within their context (Hennink et al., 2011b). Before conducting the study, the interview guide was piloted with two nurses meeting the inclusion criteria from a facility situated in another sub-district outside of the selected sites. The purpose of the pilot phase was to ensure that the questions were clear and that they elicited the kind of data the researcher required to answer the research question (Hennink et al., 2011b).

2.7 Data Analysis

2.7.1 Data preparation

Data analysis is a process which involves; preparation and organising, reading and memoing, describing, classifying, interpreting and representing data (Cresswell, 2007). Storing and organising the collected data is critical for analysis. Safe storage prevents loss and ensures confidentiality regarding the participants' identity and the content discussed. Also, organising

data early on during data collection helps for early analysis. For quality assurance, the researcher used a high-quality audio recorder to capture and store correct data during the interviews. Data were safely stored by the researcher on a different computerised source as a backup to prevent loss and manipulation.

In preparation for analysis, data were transcribed verbatim using the electronic software O' Transcribe which was prior checked that it fitted the content for transcription. Phrases and words said in Setswana and Afrikaans were translated into English by the researcher. For quality assurance, clean up typographic errors and familiarisation with the data, the researcher read the transcripts deeply. This process was conducted while simultaneously listening to the audio recorded data. To ensure confidentiality and anonymity, participants were de-identified by allocating them unique codes during interviews and transcription. In addition, the names of the facilities were not used as identifiers and data were not analysed per facility.

Following data preparation, the researcher undertook an iterative process of in-depth reading of each transcript and developing codes using electronic coding software MAXQDA v12. During this process, emerging concepts and memos were drafted to ensure validation against the research question and objectives. Inductive coding was applied which allowed for the reduction of data to create themes for analysis (Cresswell, 2007). A table illustrating the participants' characteristics, and the type of facility they were working in was created (see table two). Subsequently, a layout of themes and subthemes was developed according to the study objectives to answer the research question (see table three).

2.7.2 Thematic analysis

Thematic inductive analysis was used to explore the nurses' perceptions and experiences in the implementation of NIMART in Dr RSM district. From the synthesis of broader codes, the themes that emerged were identified and synthesised to create concepts. Therefore, theme generation and description using thematic analysis to interpret and represent data were employed (Cresswell, 2013). The researcher interpreted data to gain the bigger picture by going beyond the themes and codes to find meaning, compare and fit them into the findings of the existing literature. Data were finally presented in a narrative form, detailing nurses' perceptions, and experiences in the implementation of NIMART.

2.8 Trustworthiness

In qualitative research, trustworthiness refers to the assessment of rigour in order to establish the truth value of the findings' credibility, dependability, transferability and confirmability (Krefting, 1991, Guba, 1981). These concepts are described below in alignment with the study.

2.8.1 Credibility

Qualitative data need to be truthful in representing the subjective views of the participants, such that findings can be related to when read by the target population (Krefting, 1991). To ensure credibility, the researcher employed the inter-coder agreement wherein transcripts and coded segments were shared with the study supervisors and a Professor at the Wits School of Public Health to compare emerging themes to ensure that they really represented the true views of the participants (Krefting, 1991). In addition, triangulation was ensured through the selection of participants from different PHC facilities in different sub-districts to enhance corroboration and a variety of views. Credibility was also achieved through the direct translation of words said in Setswana and Afrikaans into the English language, to represent exactly how the participants expressed themselves.

2.8.2 Dependability

The researcher ensured extensive description of data collection methods, analysis, and interpretation to showcase consistency of the findings (Krefting, 1991).To achieve this, the methodology description was such that methods could be consistently repeated in a similar context or with a similar group to arrive at similar results (Krefting, 1991). The findings were then consistent with the methodology used.

2.8.3 Transferability

The researcher ensured that the findings from this study fitted into other settings with similar contextual characteristics (Guba, 1981, Krefting, 1991). Thus, the researcher extensively described the study setting and the sample to allow future researchers to transfer these findings to similar settings. For instance, if a future researcher would apply the same methods in a different context with similar characteristics as Dr RSM district, then findings would be similar.

2.8.4 Confirmability

Confirmability is concerned with the results being truthful of what the participants relayed and not what the researcher perceives to be true (Krefting, 1991). To ensure confirmability, only the findings from the collected data were reported rather than from which the researcher already

knew about Dr RSM district. Also, the participants' direct quotations were used verbatim to reflect their views. This was achieved through a detailed description of the researcher's reflexivity to reveal her previous work in the study setting. Furthermore, methods were described in a manner that allowed for further interrogation of results (Guba, 1981).

2.9 Ethical Considerations

2.9.1 Informed Consent

Protecting the rights and well-being of participants, needs great care whenever executing research involving human beings (G and Ehrlich, 2007). In addition, the SA Constitution Bill of Rights Chapter 12 (2) [c] (The Government of South Africa, 1996) and the National Health Act, 2003 Chapter nine section 71 (DOH, 2003) declare the need for legal obligation of the researcher to obtain informed consent from participants before the research process starts. Equally important is obtaining permission from the relevant gatekeepers to conduct the research after reviewing and approving the objectives of the study and methods to be used. Furthermore, researchers have a moral obligation to respect persons (autonomy) by obtaining informed consent from the participants (Appendix 2), to do no harm (non-maleficence); to do good in the best interest of the participants (beneficence), and that the results of the research process will benefit the target population equitably (distributive justice) (Naidoo et al., 2007). The researcher obtained informed consent to conduct recorded interviews after sharing detailed information with the participants (Appendix 1, 2, and 3).

2.9.2 Ethical approval and request for permission

To comply with ethics, the researcher asked for approval to conduct the study from the Policy, Planning, Research, Monitoring and Evaluation Directorate of the North West Province Department of Health (NWDoH) (Appendix 6) for Provincial approval, protocol NW 201802 006. Additionally, the researcher obtained ethics clearance (Protocol number: **M170971**) from the Human Research Ethics Committee (Medical) (HREC) of the University of the Witwatersrand (Appendix 7). Furnishing the ethics approval letters from the province and HREC, consent was also asked from the facility managers and participants to conduct the recorded interviews (Appendix 3).

2.9.3 Refusal to participate

The information sheet (Appendix 1) that explicitly explained the purpose of the study and ethical considerations was given to participants for reading, and clarifications prior to them providing consent were provided. The researcher also asked the participants' permission to

audio record the interviews before interviewing (Appendix 3). It was made clear that any participant refusing to be interviewed on the day of data collection would not be penalised in any way. There was no incentive offered for participation.

2.9.4 Confidentiality and anonymity

To protect the participant's views and identity, the researcher used codes to de-identify participants during data collection, analysis, and reporting. In addition, the interviews were conducted in a private room of the participant's choice, and the names of the facilities were not divulged during the analysis and write-up phases. The recorded data were stored in different computerised software to avoid loss and manipulation. Furthermore, only the researcher and supervisors had access to the data. The audio records and transcripts were kept safe under lock and key in the researcher's possession. The information will be kept for two years if published, or six years if not published, after this period the researcher will destroy the information as per the institutions' research policies.

2.9.5 Risks and benefits

There were no incentives for participation in this study. However, participants were assured that through participation, their voices would contribute towards improved policy formulation in the health sector. Some voiced that the interviews helped them debrief about their issues as they had an ear of the researcher to listen to their experiences. Data collection involved extensive travel throughout the three sub-districts to reach the nurses, hence increasing costs on the part of the researcher.

2.10 Dissemination

The final report will be shared with the North West Department of Health Provincial office and the Dr RSM district management for dissemination. This work will also be published and shared through conference presentations. The nature of the research question does not suggest that any of the information that is revealed during the interviews will be necessary to act upon from an ethical perspective.

2.11 Reflexivity

It is essential to apply reflexivity tactics during such kinds of research activities. Thus the researcher, had to continually reflect on how her background, social stance, values and ideologies may have influenced the research process (Hennink et al., 2011a). Prior to each interview, the researcher briefly reflected with each participant on her prior knowledge and

experience of the context, and her current outsider role. However, she actively encouraged the participants to share their experiences and perceptions freely, without the influence of knowledge of the researcher, or the presumption that the researcher already knew their experiences in the context.

2.11.1 Insider role

The researcher is a professional nurse and has worked for a District Supporting Partner organisation (DSP) in the Dr RSM district as a Clinical Trainer and NIMART mentor. The researcher has also worked as a NIMART trainer in Dr RSM district, and she knew some of the common challenges faced by professional nurses implementing NIMART in PHC facilities. The researcher's own experiences of the challenges and the enablers of NIMART implementation during the training and mentoring stages, and the existing collegial relationship (interpersonal reflexivity) could thus potentially influence the research. For instance, a participant saying, *"as you know mentors left…"* Therefore, the researcher was reflecting on her own thoughts on the challenges and enablers of NIMART implementation in Dr RSM district in order to avoid confirmation bias throughout the research process (Hennink et al., 2011a). In addition, she constantly assured the participants that the interview platform was theirs to use and tell their authentic stories, and not what they perceived the researcher wanted to hear from them.

2.11.2 Outsider role

At the time of data collection, the researcher was no longer working in the district. The outsider role added relaxation for participants to honestly share their experiences and perceptions freely. This was evidenced by some of the participants becoming emotional when relaying their challenges and experiences.

SUMMARY

This chapter has described the exploratory qualitative research methodology used to answer the research question and the objectives. The study setting has also been extensively described. The participant inclusion and exclusion criteria were also explained, and the reasons set out. Tools used to transcribe and analyse data were equally highlighted, notions of reading, memoing and coding were explained. Importantly, the process of identifying common themes and then concepts to present the findings have been considered. The next chapter presents the findings obtained through the qualitative research method.

CHAPTER THREE

FINDINGS

3.1 INTRODUCTION

This chapter presents the results of the study done in the rural Dr RSM district (Dr RSM) of the North West Province (NWP). Firstly, the demographic description of the study sample is provided. The key findings are then presented according to the study objectives, as well as the themes and subthemes that emerged from thematic analyses.

3.2 Demographic description of the study participants

As already indicated in the previous chapter, sixteen participants were interviewed in this study. Table Two below shows that the majority of the participants were females (81%), thus 44% of these women were aged between 36 and 45 years, while 31% were aged between twenty-five and thirty-five years, and only 25% were in the age range of twenty-eight to thirty-five years. Male participants made up 19% of the total sample (n=3) and were between the ages 28-35 years. Most of the participants worked at the Community Health Centres (CHCs), including two from CHCs who were allocated to the mobile clinic and school health services. Half of the participants had also been implementing NIMART for a period of three to five years, while the other half had worked for a period of between six to eight years. Most of the participants (81%) had other health related qualifications in addition to NIMART and its pre-requisite courses, such as PC 101/PALSA Plus[5] and IMCI[6]. Most of the participants also had done Primary Health Care courses in addition to their primary qualifications of comprehensive nursing (General Nursing, Community, Midwifery, and Psychiatry).

[5] PALSA PLUS / Primary Care 101 (PC 101) is a symptom-based integrated clinical management guideline for the management of common symptoms and chronic conditions in adults.

[6] Integrated Management of Childhood Illnesses, a systematic approach to children's health which focuses on the whole child.

Table 3.1: Demographic description of the participants

Description	N	%
Gender		
Male	3	19
Female	13	81
Age (years)		
28-35	5	31
36-45	7	44
46-56	4	25
Years of NIMART experience		
3-5 years	8	50
6-8 years	8	50
Facility Type		
8 hours/5 days a week (PHC)	5	31
24 hours/7 days a week (CHC)	11 (Incl. 2 nurses attached to mobile clinic and school health)	69
Additional qualifications/courses	13	81
Primary Health Care and other health-related		

3.3 Themes and Sub-themes results presentation

The study findings located five themes that emerged from the in-depth interviews with the participants. The table below presents the five themes together with their sub-themes against the study objectives.

Table 3.2: Themes and sub-themes presentation

Objectives	**Themes**	**Subthemes**
1. To explore nurses' perceptions of the NIMART programme in Dr RSM district	**1. Perceptions about the NIMART programme**	• A task shifting strategy to manage HIV. Benefits of the NIMART programme

2. To explore the nurses' perceptions and experiences of factors facilitating and inhibiting the implementation of NIMART in rural Dr RSM district	**2. Contextual elements affecting access and adherence to NIMART**	• Rurality challenges
		  ↳ *Long distances to the health-care facilities and high transportation costs*
		  ↳ *Farmworkers' unique challenges*
		  ↳ *Poor staff attrition*
		• Socio-cultural factors (traditional beliefs)
		• Social norms and values
		• Political and governance factors

	3. Factors facilitating NIMART implementation (NIMART enablers)	• Functional health information management system and clinical guidelines • Multidisciplinary team and skilled personnel • Impactful counselling services • Intrinsic nurse motivators

	4. Factors inhibiting NIMART implementation.	• Human Resources for health challenges • Service integration challenges • Insufficient management and health service support systems • Capacity building challenges • ART non-availability • Nurse demotivation • Patients' non- compliance to ART
3. To make recommendations for NIMART quality improvement in Dr RSM district	**5. Proposed recommendations to improve the quality of NIMART**	• Staff training and capacity building • Human resources increase. • Management support and debriefing • Health service support resources • Patient support system improvement

3.4 Theme 1: Perceptions about NIMART

Theme one outlines the participants' views about the NIMART programme, and their expressions were more leaned on the clinical management of patients on ART, task shifting and NIMART benefits for patients, as reflected below in figure 3.1.

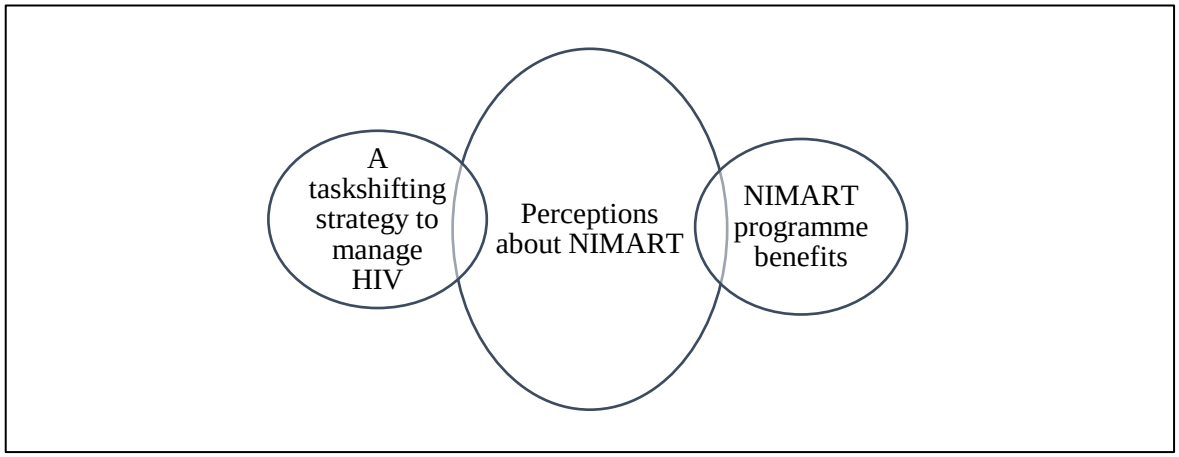


Figure 3.1: Nurse perceptions about NIMART

Sub-theme 1: A task shifting strategy to manage HIV

The nurses expressed their understanding of the NIMART programme as a task-shifting strategy to reduce the workload from doctors to nurses and to improve patients' clinical outcomes. Most nurses understood the NIMART programme at an operational level, in other words how to manage HIV in individual clients and improved access due to the decentralised service.

> *"Ok, on my understanding about NIMART training… NIMART is that you, as the nurse you can initiate patient on antiretroviral. Like previously, the doctor was initiating the patients, but now we can do that as NIMART trained nurses, which also helped the patient because in that kind there is no delay for the patient to be initiated. As soon as you find out a patient is positive, then you do all the test that you have done, and then you can initiate the patient following your protocol…" (P 1, female, 50 years).*

There was also a more radical expression by younger nurses referring to NIMART as a workload relief strategy to benefit doctors:

> *"What I know about this NIMART training it's been implemented so that we should…I will just say my opinion it's just to reduce workload from doctor". P 15, female, 35 years*

The participants also raised the topic of their own task-shifting in their daily activities through allocating certain tasks to other staff cadres. The reasons that they engaged in task-shifting were attributed to the shortages of the required skills due to nurses engaging in NIMART.

> *"when there is … someone went for training, someone is sick, someone is on leave and we are only three, the priority side would be seeing that the maternity must have, the child and the chronics whereby at the TB room and the ARTs the enrolled nurse together with the counsellor, whereby the sister, time and again they have to phone her…" (P 5, female, 49 years).*

Allocating other cadres to tasks also tended to leave a gap in service provision. One participant noted how work gets affected when internal staff is redirected,

> *"It affects them because we have got three counsellors in the facility and the other one is not trained; he did not go for training so most of the time he's the one who does that. So, we're only working with two counsellors presently" (P 11, female, 36 years).*

Sub-theme 2: NIMART Programme Benefits

Participants perceived the benefits of NIMART included better access to patients because of decentralised services. This meant a shorter travelling time. In addition, there was a belief that nurses were now more accessible and that they were able to build a relationship with clients and that this enabled the latter to freely express themselves:

> *"You know, I feel like I am now of much help to the clients than I was before. Because before, you would see the client, refer them, but then at the end of the day, they left unassisted, and we would lose contact with them, not seeing them again. This was because we did not see and build a relationship with them. So now, for me, it's easy to build a relationship with my client, I observe them, and when I see a client's condition going down, it's easy for me to go back to them, and let them know that something is not right" (P 4, female, 42 years).*

Some participants mentioned that ART reduced the death rate but also that patient education on the disease was equally important for health promotion and adherence. This is reflected by one participant who said:

> *"…it helps a lot because the death rate has been reduced. It's not like before introducing the ARVs to the clients, its better. Compared to the previous years before…but… and also the*

clients are now free. They are not like, they are free to come and disclose their status, and they are no longer in fear of disclosing" (P 7, female, 43 years).

Most participants mentioned that eventually, all their efforts are towards satisfactory patient clinical outcomes:

"So now, for me, it's easy to build a relationship with my client, I observe them, and when I see a client's condition going down, it's easy for me to go back to them, and let them know that something is not right, let us check what it is that they are not doing correctly." P 4, female, 42 years

Another participant went on to emphasize the need for satisfactory patient clinical outcomes drawing from her role and responsibility as a nurse:

"…because the nurses are the closest personnel to the patients hence it's much easier. We are the … should I say spokesperson?" (P 15, female, 35 years).

There was also a sense of perceived empowerment from managing HIV and helping patients in totality due to the increased interaction with the patients.

"Yes, we do benefit. Firstly exposure, how to treat patients with HIV/AIDS and then because we are taught to test and then to treat the patients so in the beginning nurses were only trained to test then the doctors were the ones who were giving treatment to the patients. So at least nurses are able to manage patients fully who are HIV positive." (P13, male, 28 years).

3.5 Theme 2: Contextual elements affecting access and adherence to NIMART

Theme two describes the rural contextual elements affecting access to and adherence to NIMART. These are rurality challenges, socio-cultural factors (traditional beliefs), social norms, and socio-political and governance factors.

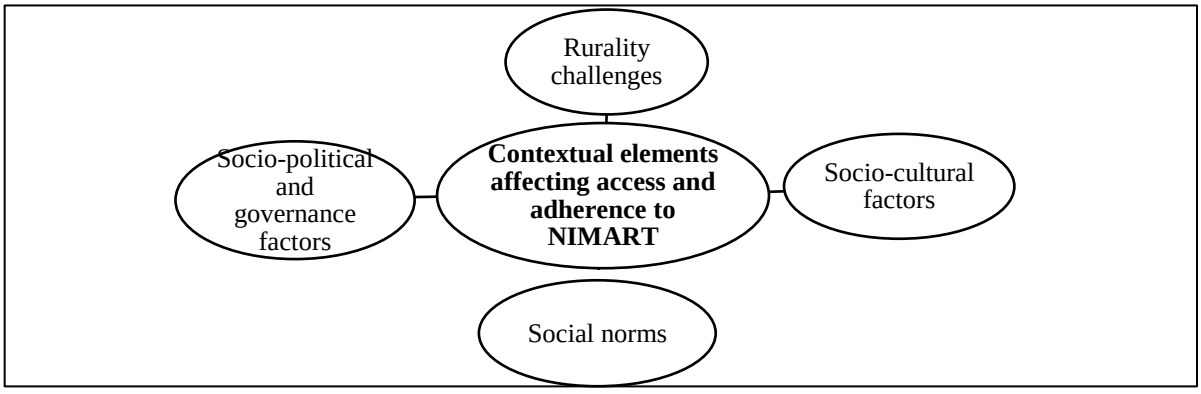


Figure 3.2: Contextual elements affecting access and adherence to NIMART

Sub-theme 1: Rurality Challenges

Subtheme one unpacks long distances and transport costs for patients, challenges unique to farmworkers, and poor staff retention as key rurality factors affecting NIMART implementation as described by the participants.

Long distances and transport costs for patients

Long distance from the healthcare facilities and transport costs were mentioned in relation to patient defaulting and working in the farms. This is indicated in the below participants' excerpt:

> *"…and the other challenge will be the patient will be staying in farm X or in the farms, the patient will be coming here sometimes not getting transport or would just come in walking and then when you give the patient the date she won't come back because she won't have transport or taxi fare to come back after 4 week" (P 6, female, 39 years).*

In addition to farmwork, another aspect leading to patients defaulting due to lack of transport money is the patients' use of cross border facilities with the aim of avoiding stigma.

> *"In our facility, it is made difficult by our clients who live on the farms in terms of the distance, as well as our cross-border patients. You find that clients choose not to go to clinics near them but opt to go to ones out of their communities because nobody would know or recognize them there. A client will come from Area A to Area B They would come as scheduled, and comply, but then when they can no longer afford transport to come to Area B, the client would default, because they do not have the means." (P4, female, 42 years).*

Some patients were believed to attend facilities outside of their catchment population to avoid stigma from local people, even if that will cost them money and long-distance travel.

> *"The challenges are the clients who are from the nearest rural arears. Some of them they prefer to come and collect their treatment around [name of clinic] whereas there are some facilities around there. They think that their… status will be known to others who know them there…So the challenge is…most of the time they will come from other areas, when they are supposed to come for their follow up visit they will be having a challenge of transport fares, taxi fares to come this side" (P 7, female, 43 years).*

Other cross border clients were also noted to come to the nearest clinic regardless of it being outside their catchment population.

"… there are just neighbour places like Village 1 and Village 2 just around before you.... they are in Area C, but they are just closer to us. Instead of going to the. Facility X… It's far from them, now we are the nearest. Instead of going there, they come here for consultations" (P 9, female, 31 years)

The emergence of new living areas for the population also added to the burden of long-distance travel to facilities for patients. Participant 1 (P1) indicated how relocation to new areas affects patients, especially who live far and are too ill to come to the clinic:

*"…The geographical area, the demarcations have changed. Township A now has more informal settlements because previously it was on informal settlement A and then came informal settlement B, and most of the people are now residing in Colourblock, they moved into informal settlement C…That side, so it's very far from here, so people they default because the clinic is too far. Some of them are very ill to come to the clinic, I understand there is a mobile, but it does not come there every day and Informal settlement C itself it's a location [*Township*]…a lot of people live there" (P 1, female, 50 years)*

In addition to the participants' perceptions on long distance issues and costs relating to patients, they also shared their experiences on how long distances affect client up-referral and access to access to the district hospital:

"the referral system is giving us a problem because if I need to refer a patient for a second opinion may be to be seen by a doctor, that means if I cannot assist that patient to get an ambulance, most of them are not working, now from Kgomotso to Taung district you can imagine the distance from where we are… Approximately I think it's plus/minus 70 [kms] because from here to Pampierstad is 20 [kms]*… so if a patient is leaving Kgomotso to Taung probably he will arrive there around 11 o'clock. So, when he arrives there can you imagine the queue already in the hospital for patients who are from this side" (P10, male, 37 years)*

The nurses at the furthest clinic from a district hospital asserted that long distances also affect the programme support they are supposed to render to the surrounding remote clinics. For instance, programme updates usually reach them late as programme coordinators cannot easily reach these facilities, NIMART trained nurses cannot be mentored, and some emergency medicine and supplies orders cannot timeously be processed due to transport unavailability and bad roads.

"I was trained for mentoring, and apparently there are NIMART trained nurses in the district who are trained for NIMART, but they haven't been certificated. So we were tasked to monitor them so that they can be certificated, but one of the challenges is transport, it's the main challenge because am monitoring nurses in this area, So it means I have to transport myself from here to [name of village] to go and visit those nurses so that they can complete their Portfolio of Evidence and [name of Village] is very far and the road is not up to standard." (P 11, female, 36 years)

Farmworkers have unique challenges

Most participants reported farm work by patients as one major contributor to patient treatment defaulting and loss to follow up. Farmworkers lack access due to lack of transport, money, and uncooperative farmers that will not release them to go for treatment collection

"Because of unemployment also people who are staying in the villages they are farm workers, now most of the time they have to go there that's the only way they will be able to be employed without qualification, so they spend most of their time there." (P 10, male, 37 years).

Working on farms was also strongly related to access to healthcare facilities, this can be influenced by the long distance and lack of transport. One nurse referred to farm patients as:

"…those are the ones now that are now a bit of a problem because you would give them dates and they would tell you about their bus that wants them to be grouped together and say "no if you guys are going to get your medication rather go all today", but the clients will not be of the same cohort but we try to work our way around it" (P14, male, 31 years).

The participants' perception of farmers was that of inconsideration of their workers' health. Most nurses concurred with their perceptions as evidenced through their interactions with patients:

"We are surrounded with farms, those people most of the time they are unable to come to the clinic during the week because they are staying far and sometimes their employers don't allow them to come to the clinic during the week." (P 9, female, 31 years).

On the contrary, one of the participants working in the mobile clinic reported good cooperation with the farmers to access and assist patients while at work on the farms:

"Most of them do allow us access. It's only that they do not want you to keep their employees from their work. But if they are well informed and know that this person is going to come on

the third, and on the third, they know that this person has twenty people, maybe fifteen will go to the clinic. They condition themselves. The only problem is when they do not know when your follow-update is…" (P 4, female, 42 years).

Poor staff retention

The district also sees as high number of nurses leaving the district as there is a general dissatisfaction with their working and living conditions. This is what the participants had to say about nurses who leave area for bigger cities.

"I think it's because it's a small town, there is no Pick and Pay, Checkers, that big things, entertainment. It's a place for old people actually" … "The challenge is that there is some people, some sisters that have been trained on NIMART, but they left, either to the sub district or out of town." (P12, female, 56 years)

Participant 9 asserted her plans to leave the district for greener pastures due to her dissatisfaction with her PHC qualification not being remunerated for:

"… like now I was trained for PHC since from 2015 so even now we are not even on this post of this of Primary Health Care. So, they just went for greener pastures for those posts. And I'm next" (P 9 female, 31 years)

The availability of equipment which makes the execution of nursing tasks easier was also mentioned as a determining factor in whether the nurses stay or leave.

"*…so, if we are having equipment maybe we can attract more nurses to come to this side. Nurses for them not coming here it's just like as I'm saying to you; if we not having enough equipment to help you do your job it's challenging to you" (P10, male, 31 years)*

Staff attrition was not only due to the rural nature of the district but also the lack of recognition of nurses as PHC trained and nurses from outside the district wanting to migrate back to their hometowns after community service:

"*…the other 2 those who were working here, they were from far, so they just felt like they need to go back home or stay closer to home those were the reasons. The others were just … like now I was trained for PHC since from 2015 so even now we are not even on this post of this of Primary Health Care. So, they just went for greener pastures for those posts. And I'm next." (P 9, female, 31 years)*

Sub-theme 2: Socio-cultural factors (traditional beliefs)

The nurses experienced the impact of socio- cultural factors on care and treatment of patients on ART. Two nurses reported ignorance and reliance on herbal medicines by the village people. Their views were strong on the fact that before seeking medical assistance, people consult *"ngaka ya setso"*[7] first prior to coming to clinics and at this point the patient is often extremely sick:

> *"Yeah, being in a rural area at some point it's very difficult, people like I said tend to be ignorant. Most of the time people they want to rely much into herbs instead of taking treatment and again the reason why the HIV rate is so high." (P 9, female, 31 years).*

The nurses reported that starting the patient on treatment from an advanced illness stage creates a burden on them as there is a lot of clinical work to be carried out.

> *"…Most patients here, if they are HIV positive patients, they will first start by consulting the traditional healers and the spiritual healers before coming to the clinic for initiation. So, whenever you are encountering such patients, they will come on later stages, although we are encouraging them to start early on treatment… So, when he's coming to the clinic you will find him in that stage whereby the patient is severely ill, chronically ill now. So, you have to work that patient from that stage upwards." (P 10, male, 37 years)*

Poly medicine use was said to aggravate the side effects of the ARVs due to drug interactions with the herbal medicines.

> *…. now treating it with traditional healers and these ones most of the patients will be suffering from all those severe side effects that we are finding it difficult to even deal (P 10, male 37 years)*

One nurse had a strong feeling that people were ignorant, and that HIV awareness needs to be maximised. He went further to say:

> *"I have to raise awareness to our community I would say to our community members, they must use the facilities and they must report no matter the problem is small or big, they must report because most cases here in villages… my community I always emphasise this "don't go to (I forgot to mention this one) private doctors first then come back to the facility" because*

[7] "Ngaka ya setso" means an African indigenous healer.

now I will encourage community to use this facility. We maybe not have all resources needed to render proper care, but they must start here" (P10, male, 37 years).

Another nurse concurred with the lack of health information in the community.

"But now the thing it's when coming to health education like I'm saying, like they come also infected. It's like health education, in-service or campaigns, awareness, we don't have those campaigns and awareness regarding HIV here in this area and that's the one thing." (P15, female, 35 years)

One young male participant expressed his experiences on the socio-cultural issue regarding gender differences between himself and female clients, stating that he experienced discomfort when consulting female elderly clients:

"Now with the other challenges, it will be basic things like cultural differences whereby you would find that it is difficult for a male nurse like me, having to examine an elderly woman and do a full physical examination that would help you to get a clear picture of this woman. So, as you are…. especially a young nurse learning, it is sort of difficult for you to ask this particular woman to say, "mama can you please undress, let me examine you…I need to examine" (P 14, male, 31 years)

He also went on to allude to the fact that in managing HIV, one has to discuss sex topics with clients and that he experiences discomfort with both male and female elderly clients, as culturally he has to show respect by not discussing such topics:

…or to even talk about sexual issues because as we know the HIV virus has other modes of being sexually transmitted and we need to talk about sexual issues when we are initiating. So, for a young nurse to speak to an adult whether it's male or female, it is sometimes also quite difficult to be frank and speak a language that they will understand and get out of the room having grasped and understood you completely." (P 14, male, 31 years)

He stated that with experience though, he managed to develop a communication skill that would be acceptable to the patients and his show compliance to his cultural upbringing as well.

"So it was kind of difficult for me as well in the beginning that here is an elderly woman, I need to tell this woman about… constant use of condoms whilst you are even using medication for ART, but you would try to work a way around it but eventually as the time went by like I said

you learn the skill of talking to your clients in a way that would not seem disrespecting them or disrespecting your cultural upbringing." (P 14, male, 1 years).

It was highlighted that nurses tend to leave the district due to lack of amenities. This is what the participants had to say about nurses who leave area for bigger cities:

"I think it's because it's a small town, there is no Pick and Pay, Checkers, that big things, entertainment. It's a place for old people actually…The challenge is that there is some people, some sisters that have been trained on NIMART, but they left, either to the sub district or out of town." (P12, female, 56 years).

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"…the other two those who were working here, they were from far, so they just felt like they need to go back home or stay closer to home those were the reasons. The others were just … like now I was trained for PHC since from 2015 so even now we are not even on this post of this of Primary Health Care. So, they just went for greener pastures for those posts. And I'm next." (P 9, female, 31 years).

Sub-theme 3: Social Norms

On this sub-theme, it was mainly the participants from the most rural subdistricts that spoke on this subtheme. Most issues were related to gender and the socio-economic status of women that impacted adherence to ART. The participants mentioned that often, it is women who visit the healthcare facilities, however, due to their dependence on men for survival, they do not always disclose their HIV status for fear of being rejected and suffering:

> *"Here is the case, for what I have found out is the problem (neh) I'm working, you are my woman you are not working. I'm working there by the mines, now you become pregnant after you become pregnant you come and book earlier, then you test positive, you understand. You are afraid now to say to your man "yes am pregnant and am HIV positive" the problem is they are saying these women "I don't want to disclose to my husband because I'm afraid that he may leave me now, so if he goes then I'm going to suffer with the children." (P 10, male, 37 years).*

Participant 12 went on to sympathise with women being victims overly dependent on men:

> *"I see it as denial, but the poor women are the victims, and the men is just.... I don't think they give reasons they just refuse. I think it's because of uhmm…they depend on the men for place to stay, money for food and also, they have children, so they just stick with that man." (P 12, female, 56 years).*

In addition, men do not use the healthcare facilities but rather measure their health based on the women's testing outcomes. This reluctance from men impacts on treatment adherence for women who test HIV positive and are afraid to disclose:

> *"You find them testing themselves with their female partners. The woman goes to the clinic and test positive then they say again no is you who is positive…You ask the woman to bring the partner and the partner refuses to come. So those are the things that make it a bit difficult for the NIMART programme to be a 100 percent programme that we want it to be." (P 14, male, 31 years).*

The participants also highlighted the fact that although the policy is in place, there are some challenges that stem from the patients' side, which draws on gender roles and control:

"The policy that says every positive person must be initiated; I mean that's very good. But still, we have stubborn patients. You will hear from a woman she's saying the man, boyfriend, or the husband refuses to come to test. You will still hear those stories, so there is lot of people outside that maybe positive but do not coming" P12, female, 56 years).

Participants reported that at times women are aware of the healthy lifestyle choices when on ART, however, condom negotiation is not well accepted by the men and is deemed a sign of promiscuity:

"…people don't want to use condoms just like the other day when I was giving health education to the pregnant women yesterday. I was health educating them about STIs, the importance of taking treatment and I ended up asking them "tell me, why are you guys not using condoms?" and the other patient raised their hand and said, "you know what sister my boyfriend was saying, I teach him nasty things" P 9, female, 31 years).

One participant raised the timid nature of rural women not being beneficial to their survival and health and they stand the risk of abuse from their male partners:

"So here even when they are … the women in the villages they are not like women from location even if they are abused, they keep it to themselves, so they are not coming out. Issues like these ones of disclosure they are not disclosing because of fear of "if you leave me, what I am I going to do with our children because I'm not working and you are the sole provider of the family" That is what I found out with these women around here." (P10, male, 37 years).

Sub-theme 4: Socio-political factors and governance

The participants extensively spoke about the strikes in the North West province at the time that was affecting the procurement and delivery of ART and other supplies.

"Since that North West strike. That's when we started having a challenge with the drugs. Because we'd order then you find that there aren't any drugs that the suppliers deliver due to the strikes." (P 4, female, 42 years).

Drug and supplies shortage went beyond ARVs:

"There was a strike back then in [Name of Area] and there was time whereby there were no treatments in the facility your hypertension, your diabetes and your ARVs, all your... of them

were out of stock you understand? Even your pain killers, your Panados and other stuff are talking those now we are just trying to move on, you understand?" (P 10, male, 37 years).

And even capacity building could not take place, as one participant mentioned:

"Since the start of this year in all the comm serves [community service nurses] *no one has ever gone for a training because of the strikes and everything." (P 13, male, 28 years)*

The participants perceived that the strikes emanated from non- payments of suppliers, however, the participants were not getting clear answers from the district management.

"*…from the management side they are saying this problem is bigger than them because apparently according to what they are saying money is the issue, so those who are responsible for funding this they are not assisting them." (P 10, male, 37 years).*

The strikes led to participants taking initiatives to save the day, as one participant mentioned:

"Yes, in the past 2 months during the strikes we ran out of Nevirapine, but FDC we were able to ask for it from other facilities." (P 6, female)

Although the nurses take initiative and improvise; they mentioned their discouragement that comes from management not being clear about issues and offering the necessary support. When asked about not getting solutions the responses were as follows:

"You just become depressed and then you try to come up with solutions on how to improve on your own, how to do things on your own." P 2, female, 38 years).

P 12 added on the frustrations of P 2 on the political situation affecting the procurement of medicines and supplies saying:

"But not like now, now it's really a disaster. I mean pregnancy strips is out of stock, urine deep sticks is out of stock- and it's so essential for a pregnant woman" P 12, female, 56 years)

Theme 3: Facilitators of NIMART implementation

The participants raised factors that facilitated NIMART implementation, and these were mostly health system related and intrinsic to both patients and nurses.

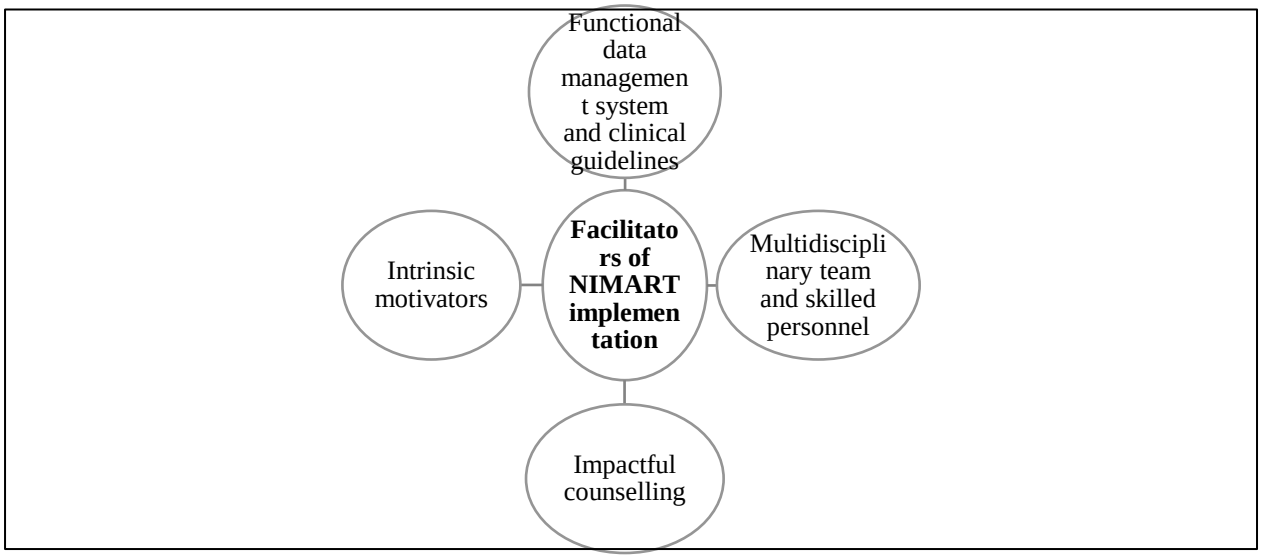


Figure 3.3: Facilitators of NIMART implementation

Subtheme 1: Functional data management and clinical guidelines

The participants mentioned that they have come a long way since the days of paper-based ART registers. Most of the nurses spoke about the ART clinical stationery and the electronic Tier.net system being helpful for missed appointment tracking. The Tier.net system data capturers were mentioned to also play a crucial role in the early detection of patient outcomes and actioning omissions as well as pro-active actioning of viral load monitoring:

> "*Before we had Tier.net, it was like…the NIMART part way we were doing it manually…The only thing it would be difficult to pick up defaulters.". (P 14, male, 31 years).*

> *"We can track patients from Tier.net. And our data capturers they also keep us updated, patients who did not come for viral load and because of the influx of patients sometimes you miss the viral load." (P1, female, 50 years).*

Most of the participants spoke of the efficiency of the standardised clinical stationery with its guiding design to the nurse on how to manage HIV positive children and adult patients:

> *"…the ART stationery is not a challenge because there were guidelines at the back of the ART stationery and the continuation sheet also it had information on how to fill up the ART stationery." (P 6, female, 39 years).*

In addition to the data management system, Tier.net, assisting with viral load due reminders according to the clinical guidelines, most participants commented on the Universal Test and Treat policy and its effectiveness in early ART start and convenience for patients:

> *"…that 90/90 which I think it's really a good thing because we even encourage patients to test and to know their status. Everyone needs to know their status, so if you know your status then you will know what to do next. because if you do not know your status you won't know what is happening in your life." (P 3, female, 43 years)*

The participants also expressed that as the updated guidelines change frequently over time, they use technology, doctors, and clinical mentors to stay up to date. Participants expressed that taking initiative to stay up to date with clinical information, and liaising with the doctors also assist with clinical guidance and build confidence:

> *"…the guidelines they keep on changing but they are of much value to me" (P 9, female 31 years)*

> *"Going through the guidelines it makes everything easy" (P1, female, 50 years)*

> *"By researching about the protocols, the guidelines and then also to phone doctors at the hospitals" (P 15, female, 35 years)*

Subtheme 2: Multidisciplinary team and skilled personnel

The nurses raised appreciation of the various members of the multidisciplinary team such as HIV program coordinators, facility managers, doctors, and Community Healthcare Workers (CHWs), and HIV counsellors in aiding them to implement NIMART. The nurse working in a mobile even went further to express that with prior communication and arrangements, assistance from programme coordinators is provided for when she visits farm clients. The HIV counsellors were also playing a significant role in preparing patients for ART initiation, and even go as far as assisting the nurses not NIMART trained in the absence of the NIMART trained nurse:

> *"When I ask to be assisted, programme managers will be provided with transport from Town X, and they will show up to assist. A project manager will show up with his or her team and they will assist anywhere they can, normally on what we had planned beforehand." (P 4, female, 42 years)*

"The support from the staff within the facility whereby there is a nice flow of support, like the counsellors do their part and when the clients come from the counsellors you can hear that this client was well taught, and the client understood fully. So, you also have that lessened burden of trying to explain again." (P 14, male, 31 years).

In addition, support was expressed to be better experienced where facility managers were NIMART trained. Empathy from facility managers provided the nurses with some support in the face of the challenging work environment:

"Yes, our matron is also NIMART trained, she can help in a crisis but as she's the facility manager she also has a lot of duties, but she supports us very good, especially she's very concerned about tracing people, and mothers and to prevent positive PCRs. So, she will go an extra mile to help us to find people tracing and adherence counselling." (P 12, female, 56 years)

The two nurses at the furthest clinic from a District Hospital acknowledged the lack of access to doctors at the facilities, however the sessional and hospital-based doctors are accessible telephonically and during onsite scheduled visits.

and when you need second opinions; there are always doctors at the hospitals which we call if there is something that you don't understand they are always willing to help" (P 1, female, 50 years).

Most of the participants spoke about the Community Health Workers (CHWs) in assisting them in patient medicine delivery and tracing, especially those who live far and, in the farms, but also as a support system for patients.

"HCWs are assisting because they go and help us. We just give them the green cards for collection, if they come along with those green cards, we just pick up the file and then we prescribe the treatment that was supposed to be given." (P 8, female, 53 years).

The nurses also stated that CHWs help them effect the quality improvement systems they put in place, for instance one nurse mentioned about the viral load uptake improvement activities.

"For viral we (stutters) before the end of the month we will be having the list, so if they come, we know already because she's having this system of putting the sticker on the file. So, when you open the file obvious you can see, it reminds you that this patient today she must take

bloods. So, we do that through the highlight, those who are not coming for collection we will make follow-ups through our homebased carers… (P 7, female, 43 years).

Subtheme 3: Impactful counselling services

The participants verbalised that counselling helped reduce repeated explanations from counsellor to the nurse, fosters a clear understanding of the treatment plan and side effects of ART, and maximises support from treatment supporters:

"As it happens that you get a patient, a frail patient, or a patient whose very ill seat with that patient, counsel that patients thoroughly and listen thoroughly from the patient and understand the opinion of a patient. I don't think there is lateness as far as HIV positive person is concerned. If that person comes on a wheelchair or that person comes on a stretcher, if you counsel that patient properly and you give that patient proper information and you have sure that person is having support (emphasizes) that person is going to stand up and that patient is going to get healthy." (P1, female, 50 years).

Subtheme 4: Intrinsic nurse motivators

The nurses expressed how their will to serve humanity assisted them in dealing with the challenges that comes with NIMART implementation. They expressed a variety of reasons why they selflessly served humanity although it is hard. For most, it was the positive clinical outcomes of patients that assured them that they are doing the right thing:

"When I see them, take bloods from them, and see their viral load is lower than detectable I become so happy. If I feel like giving them presents but I just congratulate them to keep on drinking treatment so that they are healed. (Excited tone). It's not to say they are going to be healed they are going to be better." (P 8, female, 53 years).

The universal principle of *"Ubuntu"* (humanity) took centre stage in how the nurses were expressing their intrinsic motivators, being able to step out of societal prejudices and stereotypes about HIV, regardless of the challenges they face, such as working in a rural setting, not being remunerated for NIMART and PHC, and having staff shortage:

"From my inner most [sounding and looks reflective], don't forget a patient is also a person, it's a human being." (P 1, female)

"Like when I say there is shortage of staff, I can't return those patients home, I have to see to it that me myself…I just say, "I will skip my lunch so that patients must be helped first then I eat my lunch" you see, I motivate myself. What must be done, patient must come first." (P 5, female, 49 years).

Patient accountability and gratitude was also a strong motivator for nurses to go the extra mile and do what they are called for:

"They motivated me even if people are not the same and we all have different perceptions of life but those patients who are positive and who are willing to adhere to treatment, who is willing to get better, those mothers who just found out that they are pregnant and also, they are infected, but they take treatment...So those patients who are so willing, they bring the smiles (smiles), they make you think it's not all that bad at least some you are seeing progress." (P 16, female, 32 years).

The nurses also expressed how their nurse-patient relationships made it easier to motivate clients to remain in care. For the most part, decentralisation and working in a mobile clinic assisted with this. Living in the same areas as patients help make them more accessible to the clients and being able to understand their issues:

"You know, it is because they see us more often, we live in the same areas, and the doctors live elsewhere. And also, most of the time there is a language barrier between clients and doctors. So, it becomes easier for them to approach me, because we speak the same language, and we understand each other." (P 4, female, 42 years).

"At first, I didn't know when they tell you they did not have money for transport, transport was always an issue but after going to those farms, I could see that these people were honest. It's very far, some of the farms are very far…in fact Lekwa Teemane they have 104 farms, so they are very scattered." (P 13, male, 28 years).

3.7 Theme 4: Inhibitors of NIMART implementation

This theme emerged with issues that were cause and effect and mainly about Human Resources for Health challenges. The participants mentioned factors that ultimately lead to poor staff morale, mainly brought on by the high workload they experience. The sub-themes that emerged were Human Resources for Health challenges which included staff shortage, increased workload, and prolonged waiting times; service integration challenges; insufficient management and health service support systems which included management support; laboratory systems; patient transportation and referrals; information management system, capacity building challenges, ART availability and poor patient compliance to ART, and nurse demotivation. The following section unpacks the subthemes.

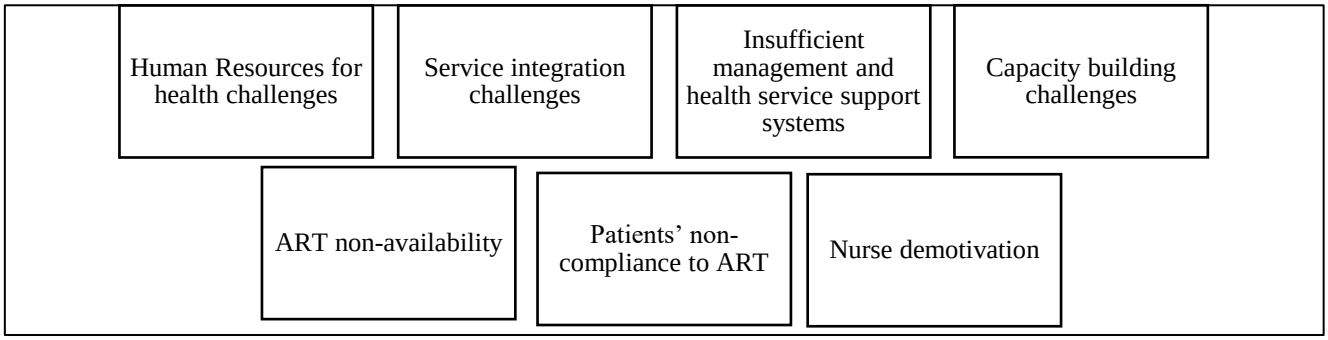


Figure 3.4: Inhibitors of NIMART implementation

Subtheme 1: Human resources for health challenges

- ***Staff shortage***

Staff shortage was reported to be a significant challenge to effective NIMART implementation in mobile clinics and fixed facilities. Contributing factors were staff leaving for greener pastures, lack of NIMART skills by community service nurses, and staff rotation:

> *"... We just have a comm serv [community service nurse] who came in February but all along we have been three all these years. But now the problem is, remember I told you about the villages that are visiting this facility. So, in most cases if one professional nurse is on her leave that means we will be left with three nurses in the facility" (P 10, male, 37 years).*

> *"We aren't enough. Because certain farms are busy. Like you could need two professionals and you'd probably also need two counsellors." (P 4, female, 42 years).*

Although nurses not trained in NIMART are not supposed to initiate clients, at times, under guidance they do assist the initiating nurses. The participants also expressed that they had to improvise through supervision of lower cadres to keep serving clients:

"…we are two sisters in the consulting room. That's one of the places where we try not to be understaffed because sometimes then especially you know you can assist if the one sister do not understand what is expected from her to do or some…maybe she is not NIMART trained because not all of us are NIMART trained… so if there is one who is not NIMART trained she can ask from the other one ["sister what am I supposed to do?"] maybe the bloods... ["what bloods am I not supposed to do?"] (P 3, female, 43 years).

In addition to their heavy workload which they do alone in their mobiles with minimal staff, mobile clinic nurses still must return and cover in the clinic where there is staff shortage, one participant noted:

"Because in other farms you'd be working alone, you'd find one professional nurse, one nurse and a counsellor. You see all the clients and you do all the programmes. It's not a case of only doing, say immunization, you do everything. One will come antenatal, you book ANC, you initiate them, an adult whose hypertensive comes, you'd have to give them the necessary treatment, from the counsellor, they've tested, you take blood samples, and you do everything. So, my work is always a lot. Then when I get back to the facility you find that there's a gap here and there's a gap there, and you assist." (P 5, female, 49 years).

- ***Increased workload***

Almost all the participants spoke extensively about the effect of workload on NIMART implementation. Fifteen out of the 16 participants mentioned various scenarios on how workload affects them. Workload challenges were strongly linked to staff shortage and NIMART skills scarcity, below, the only NIMART trained nurse in her facility said:

"For now, I've been the only one who studied NIMART so if I'm not around the facility there's no one who is initiating. They have to wait for me to come back from my off duties. When I come back, I find numbers and numbers of people who were supposed to be initiated." (P 7, female, 43 years)

The participants reported that NIMART is a lot of work generally, especially when initiating a newly diagnosed patient and still have a lot of patients to review from the queue. There is always a possibility of fatigue that can lead to errors:

"As a professional nurse doing NIMART sometimes you can see up to 50 patients a day and within that patients there are some that are newly diagnosed that needs to be initiated on treatment and there is a lot of stationery. Sometimes you will be working alone and working

alone doesn't give you the chance to tackle other things correctly or to go deeper into that..." (P 2, female ,38 years).

"Because you are tired, the work overload is too much, so you don't make proper follow ups on certain things" (P 16, female, 32 years).

Workload caused by the UTT policy was also highlighted. The increased initiations meant more work for the nurses, and with the drug shortage, it made implementation difficult:

"I think it [UTT policy]*is facilitating because it helps us somewhere to do our job hence since after the new guideline, the policy that states we must initiate every patient irrespective of their CD4 count. The workload has increased now because now everybody who is tested HIV positive must get treatment and that becomes a problem because there are lots of patients who come here and that must be initiated and sometimes you are working alone in the consulting room." (P 2, female, 38 years).*

- ***Prolonged waiting times***

Most participants expressed how staff shortage and workload affect patient waiting times. Although there are benefits to NIMART implementation for patients, participants expressed that NIMART affects waiting times of patients as initiating ART on a single client can be so cumbersome, especially for the patients with special needs:

"*You would be sitting with one patient for about close to an hour with one patient just to initiate because there is examination part of it, there is the explanation of the medication, there is assessment of the health of the particular patient that you are initiating in terms of mental illness or checking the mental status of the patient and how the intellectual part of the patient; whether the patient will be able to grasp and adhere to the treatment that you are starting with him/her..." (P 14, male 31 years).*

In addition, consuming a lot of time initiating ART on any one patient leads to others in the waiting area complaining, however, nurses take measures to keep the public informed of the approximate time to be spent in a work- station:

"And then the other thing, you had to make sure that you write all the clinical, how does the patient feel like or look like. You have to examine that patient and on the other side patients

are complaining that you have been with this patient for this very long time..." (P 6, female, 39 years).

Subtheme 2: Service Integration

In the early days of NIMART implementation, the participants would have a segregated approach to service provision, for instance, separate rooms and allocated days for HIV management, and this act would fuel stigma and discrimination among patients and in communities:

"...before around 2011/2013 we were using one room specifically for HIV management." (P 13, male, 28 years).

Some participants linked their experience of service integration to staff shortage and high workload, a case in point, where antenatal care and TB services are concerned:

"... most of our mothers they are HIV positive, most of them I don't know what the problem is. You find maybe 6 out of 10 new… first bookings are infected. Now you will have to take it from there, you will sit with the patient, initiate, and do ANC and maybe I am the only one in the shift most of the time…You will find that this person will come and attend ANC for only 2 months and decide to sit at home, not coming for treatment. Then you will only see the person when she comes to deliver." (P 15, female, 35 years.)

The nurses' experiences of service integration were varied in their respective facilities. One participant went on to express what nurses seem to make themselves comfortable in trying to deal with staff shortage and workload by allocating specific days for chronic care, which includes other services. There was also an acknowledgement that it is the farm patients that suffer a lack of access due to this practice. Farm patients cannot make it to the facilities during the week.

"The problem was that we are short staffed so and because that we were short staffed, we created these offs. We were working 7 days in 7 days out, just like the night duty staff are working. So, we said OK for us sometimes to be relieved because when you look at it the clinic everyday will be full. You understand, so we just said if today will be a chronic day we know that we going to work and finish because the chronic they are so much we going to make it Monday and Thursday. So at least if you missed Monday, you have a chance to come on Thursday to collect your treatment." (P 9, female, 31 years).

Subtheme 3: Insufficient management support and health service support systems

- ***Insufficient management support***

The responses on the management support were varied between subdistricts. The participants form the smaller subdistrict with fewer facilities, situated close to each other and the subdistrict office reported positively on management support on the NIMART programme:

> "*We are getting support because coordinators come once in a week, coming to check whether we are doing … and tell us what is not done like I told you that there is a problem we encounter about the initiation of the child, you see it's how they come. And if there is something like; this one of the CCMDD, the sub district manager together with the district they are the one who have seen that for the nurses' workload to be reduced it better to introduce the CCMDD" (P 5, female, 49 years).*

However, the participants from facilities in the other subdistricts expressed the lack of support from managers and programme coordinators due to a lack of transport to reach out and the unavailability of managers. This they expressed that it affects NIMART capacity building and implementation:

> *"So, we are trying on our part to adjust, to go with times so that we can do what is in line with the policies. But… some of the policies when they are being amended or being changed you find out that those who are responsible for giving out information to facilities or those who are running these programmes, they will neglect these areas that are far, you understand?" (P 10, male, 37 years).*

There was also a general feeling that nurses' concerns are not heard by the programme coordinators who spend lengthy periods not checking in with the nurses to hear their needs:

> *"I don't have any idea; she will come maybe once after 3 months voice raised in a dissatisfied manner). I don't see it as enough support because I think they must come sometime just to sit for the whole day, even if it's not for the whole day; to see how the programme is running, to see our challenges. Sometimes in a meeting we will be talking about our challenges, and they will be saying they will address them but sometimes they don't address them. And I think they must come and support and give us the visits so that when we talk of our problems, they must know exactly what we are talking about." (P 2, female, 38 years).*

On the NIMART programme updates, the participants gave varied responses that reflected support where it is possible but that which is inconsistent:

> *"…back then, maybe 2/3 years, they used to help us with in-service trainings even in the facility we do attend… we used to go to district office er…boardroom to attend trainings but nowadays our management they only come for in-service training when they have audited the files and see that we have made a lot of mistakes..." (P 6, female, 39 years).*

> "*So, you will find out like those policies that have been changed maybe this year, it will only come to us six months or a year later because of my coordinator was not sharing the information." (P 10, male, 37 years).*

- ***Laboratory systems***

The participants spoke extensively about the challenge of specimen collection and transportation to the laboratory which is situated at the district hospital.

> *"We take bloods in one room because the periods are very short, half past ten, the transport is departing with the specimens. So, we all know all the people that must take bloods must go there to the first room very early…" (P 12, female, 56 years).*

> *"The transport comes here at 9 o'clock, and then after that we don't take bloods… we tell them to come tomorrow but if you are staying at Area X, at the farms, we just give them two weeks to come Monday morning for the bloods. At least continue with treatment." (P 8, female, 53 years).*

The specimen turn-around time was also a challenge the participants struggled with:

> *"Then the other thing is our lab, isn't it we are taking bloods and then it does... isn't it our lab is in Area X or Area Y, so turnaround times sometimes it will be four to five days. That's our other challenge." (P 15, female, 35 years).*

- ***Patient transportation and referrals***

The nurses expressed their experiences with ambulance unavailability which at times leave them to make some sacrifices for the sake of the patient:

> *"You know it depends on how many ambulances are available and how busy are they. Because sometimes it's fast, sometimes when you call them, they aren't busy, they will come immediately. Sometimes you can't reach them, and it will be said one ambulance went to Town X, then on such*

occasions I come back with them [the patients] *to Clinic X. At least when we come here, myself, and the other nurses usually assist each other." (P 4, female, 42 years).*

Official transport for other service uses was also said to be a challenge for acquiring supplies when needed:

"It's affecting us because we are far from the district hospital, every time we need something there is no transport. The issue of transport is very serious, we would need to make emergency orders, how are we going to take them to Town X. We don't have transport around to take the emergency orders straight to District Hospital so that they can be issued in time." (P 11, female, 36 years).

The mobile clinic, although available sometimes experience mechanical breakdown, leading farm workers unattended to for prolonged periods. The poor road infrastructure leads to constant breakdowns.

"Yes, people working in farms, now what I have noted with the mobile clinics. It's not working efficiently, like the mobile clinics sometimes the transport it's broken so it is not coming. You understand those things? Others will tell you that it didn't come over three months or over two months" (P 16, female, 32 years).

Most of the participants expressed their dissatisfaction with the referral processes in the district, painting many scenarios of what makes this difficult, one being access to sessional doctors and ambulance for referral:

"There are no visiting doctors and if I'm managing a patient and I'm encountering any… (stutters) opportunistic infection maybe that needs to be referred, it's a problem because of number one: the ambulance issue…the turnaround time takes long." (P 10. Male, 37 years)

Most participants expressed that back referral from hospital was a challenge for treatment continuation due to lack of feedback from the doctors. Feedback was consistent only in TB cases. Some facilities send patients back to the hospitals to get some feedback, increasing patients' frustration about long distance travel and costs:

"…I used to experience a lot of problems with … especially when you refer a patient to hospital X, you won't have feedback from a doctor." (P 6, female, 39 years).

"There is no communication between the hospital and ourselves, because sometimes you refer patient to the hospital…Our portion says refer to the hospital and then they must bring feedback but, in most cases, we don't get that feedback except if the patient must be treated otherwise. Let's say the patient must be put on TB treatment, they will write that back referral." (P 1, female, 50 years).

The participants also expressed how their diagnoses are misinterpreted by the hospital staff, undermining their expertise in NIMART:

"Even at the hospitals, the challenges that we might have, I refer a patient who is on ART, maybe I refer her with severe anaemia, at the hospital they will be like, ["this is anaemia, isn't it we have guidelines, this anaemia it can be managed at the clinic."] So, it's like they treat like as if we don't know our jobs here, so we just refer them there like certain cold cases but for us it's serious. So even the communications level between the hospital and the clinic it's still a struggle…" (P 16, Female, 32 years).

- ***Health information management***

When it came to data handling and reporting, there were issues raised with the availability of data capturers and clinical stationery for ART information capturing:

"We don't have a data capturer. It impacts badly on us because when we do statistics every month, we have to know how many defaulters we have for the month." (P 11, female, 36 years).

"And another big challenge is the cartridges, sometimes you want to make copies then the clerk tells you there is no paper, then there is no toner, there is no cartridges to print. Like the HIV book we make pages, and we staple it so sometimes that is also out." (P 12, female, 56 years).

Subtheme 3: Capacity building challenges

On NIMART capacity building, the participants mentioned what worked and what did not. On mentoring, the nurses expressed the various ways they are mentored and how they mentor each other in keeping up with the updated skills and knowledge:

"…fortunately, facility X has three mentors at least those mentors help by training the other staff members and we always review guidelines, teach everybody and discuss the guidelines." (P 1, female, 50 years).

At times nurses are allocated other clinical duties and mentoring to other NIMART trained nurses, but they do not get the time to do so due to workload:

> *"I was chosen as a professional nurse to check our ARV records [gore] if patients are taking bloods on time, how to reduce a high rate of defaulters but due to the workload and due to the staff availability, that doesn't happen." (P 11, female, 36 years).*

A tailored mentoring approach also seemed to be inconsistent, leading nurses to nurses take the initiative in ensuring they stay up to date with the new developments in HIV management:

> *"Since I have been trained, one thing I was never mentored. So, for me it's like I was not sure with what I was doing but I was willing to do that, but I didn't have a supervisor. That is the first thing because yes, I was working trying to help our patients, but I never had that thing to say yes, I am doing the right thing. I didn't know even if I had a problem with some medications or just to help a patient or to refer a patient. I never had somebody to rely on, to say I will take you by hand, I never had anyone…By researching about the protocols, the guidelines and then also to phone doctors at the hospitals" (P 15, female, 35 years).*

Structured training and mentoring, however, was dependent on the availability of the district supporting partners:

> *"People who were training nurses on NIMART, and those people were supporting us nurses. They stopped because their contract was terminated… (P 1 Female, 50 years).*

Subtheme 4: ART unavailability and poor patient compliance to ART

The participants expressed that there are clear processes for medicine ordering which they comply to. These processes were interrupted where there was political interference at a higher level as evidenced by the service strike in the province. Most participants said they never completely run out of stock because they improvise and sometimes borrow medicines from other clinics, which in turn requires transport for collection:

> *"We mostly have chronic medication. Then we only struggle with antibiotics. I would need Amoxil but have Broad-spectrum and Cozole So I would give Cozole to improvise." (P 4, female, 42 years).*

"We have never had that incident like medical supply, we normally have treatment if you are talking in terms of treatment. There were no incidents that we completely had no treatment but in cases that we don't have we borrow from other clinics." (P 2, female, 38 years).

Drug shortages and improvising lead to potential dosing problems, as participant 9 expressed. The participants expressed that the mainstream Fixed-Dose Combination drug was available in most cases, however, it was the other drugs that catered for those with certain body weight and other virological needs that they mostly ran out of stock of:

"So, on TFE we don't have a shortage we have always have the treatment, but it is some small things like at the moment Efavirenz 200 mg is out of stock for a long period now. Now when people are below 40kg now we must make a plan. So, we give them a 600 and tell them to break it at night so that there is 300. Then we give them that 50 of the children and they must drink two 50s. Can you think how many boxes it is? and will they really understand?" (P 12, female, 56 years).

The drug stock outs had been going on for months and there were speculations on the participants' side on the reasons why their ordered items were not arriving:

"Presently the companies are changing, so the treatment is not coming well." (P 5, female, 49 years).

So that's what they were saying there was a problem with the supplier, so that problem is big for us. So, for now you must understand it's been almost 3 months. With ARV, they will only provide one box of ARV and they are containing 144 inside for over 380 patients. So, since March our patients have been getting 28, 14 depending on the distance from where you are. Those who are local normally we give 14 or others 6…" (P 10, male, 37 years).

Drug shortages and improvising in the quest of having patients "*take something home"* lead to potential dosing problems, as Participant 9 expressed her practice during the three months when their facility did not have a certain drug in a particular strength and formulation:

"Medicine is a problem, recently now we've been having a problem of Efavirenz 200, we been struggling with Efavirenz 200, at some point we ended up giving those who are weighing less than 40. We will be giving them FDC because you can't just leave them without treatment." (P 9, Female, 31 years).

In addition to ART unavailability influencing patient compliance, the participants expressed their perceptions on other factors contributing to poor ART adherence by patients. Stigma at home and at facility, migrant labour system, gender dynamics and patient illiteracy were some main factors that were said to influence adherence.:

> *"... maybe when they come to the facility, and they see a neighbour or someone that they know because before around 2011/2013 we were using one room specifically for HIV management. So maybe they will come to the facility, see that person they will go back without getting help or treatment from the facility. I think they were afraid of discrimination because of their condition." (P 13, male, 28 years).*

The facility service integration contributed to the stigma experienced by patients:

> *"So, and because of this (how can I put it?) this culture that we practise in our clinic that today Mondays is for chronics, and Thursdays is for chronics, so most of the clients when they come during the week, they are not being helped because it's not the day for chronics. That is problem number 1 that we have." (P 9, female, 31 years).*

The nurses perceived migrant labour as a contributing factor to patient defaulting as it is coupled with long distance travel and high transport costs:

> *"So, most of the time you will be having patients on treatment taking their treatment but because they are seasonal workers from time to time you will have a problem whereby these patients, they are not honouring their return dates for appointments. They end up defaulting because of unemployment or working as seasonal workers." (P 10, male, 37 years).*

> *"Things that make it difficult to initiate NIMART is the problem about ... because we are surrounded by many farms and the people are unable to come to the facility on the correct date that they have been given." (P 8, female, 53 years).*

Patient information about HIV and literacy levels were also raised as contributing factors to patient defaulting:

> *"But with medication other patients it will be maybe an older person who is unable to read the date so he will be defaulting because of that and then that patient will get this month's medication, he will not finish it…he's gonna miss the doses, so when he comes sometimes he doesn't come with remaining tablets and then we have to get those remaining tablets so that*

we write what is left and what is out; the tablets that we are giving out and then they will pile up because the patient doesn't take his treatment every day." (P 6, female, 39 years).

Subtheme 5: Nurse demotivation

The participants raised their frustrations that left them helpless to implement NIMART. Most of the participants' frustrations were related to patients missing their appointment dates, and only a few mentioned workload and management support:

"Some work at the farms, no matter how much you try to pressure the patient, you beg "please I will write a sick note for you, so that at least we can for that week do comprehensive management, we take everything" the patient will tell you (MaBuru amakgakga tota) "White people are a very malicious". So those challenges, sometimes it's frustrating because you know at some point you are failing that patient" (P 16, female, 32 years).

They also highlighted that the lack ack of teamwork from other nurses left the only NIMART trained nurse in a facility overworked and depressed as others would leave work to pile up for her while she was on leave:

"Sometimes they refuse to initiate. Eish, I become so depressed [both laughing] *because I just want these people to be at least to be alright." (P 8, female, 53 years).*

The participants said that to manage staff shortage, nurses often got delegated to other tasks that are not NIMART related, however, that also created dissatisfaction:

"…sometimes you just have to pray before you come to work because lots of ... like shortage of staff and then lots of other problems that we encounter. Like we don't have a nurse who is working in pharmacy. Sometimes you will be asked that if you don't have the patients that side, go to pharmacy and pack the medication…. Sometimes you will be asked … (stutters) maybe you are working in TB room, "today we have a shortage, somebody is sick then go to another room." You go to manage other programmes, even though we have to rotate but it disturbs a little bit." (P 6, female, 39 years).

Only two participants passionately expressed their frustrations on their work and remuneration. The challenges they face versus the remuneration they receive often leaves them helpless, with one participant taking the stance that nursing is a career like any other, and no longer "*a calling":*

"It is hard to be motivated especially in the recent past whereby now I have just been trained on PHC, but they are failing to remunerate me for the PHC. So, it was quite challenging to be motivated that I am trained to do such work and I cannot be remunerated for it, and it would translate into all aspects of your life basically… the thing that people always say "nursing it's a calling" it's something of the past. We can no longer be working for callings now, we want to be seen to be appreciated with monetary value…" (P 14, male, 31 years).

The participant working in a mobile clinic further expressed her feelings about remuneration not being able to match the many roles she plays in the mobile clinic:

"Yeah, it does motivate, but not that much because my worry is that in the mobile clinics you are a nurse, a driver, a manager, you are basically everything. But you will only get a nurse's salary" (P 4, female, 42 years).

Theme 5: Proposed recommendations to improve NIMART implementation

The participants proposed the following recommendations as they felt that these factors would make their NIMART experience easier and still benefit the patients. These inputs were based on staff capacity and support services for them to be able to implement NIMART in an improved manner. Another factor that they felt could make their work easier is improvement around the patient support systems both in the health system and in the community.

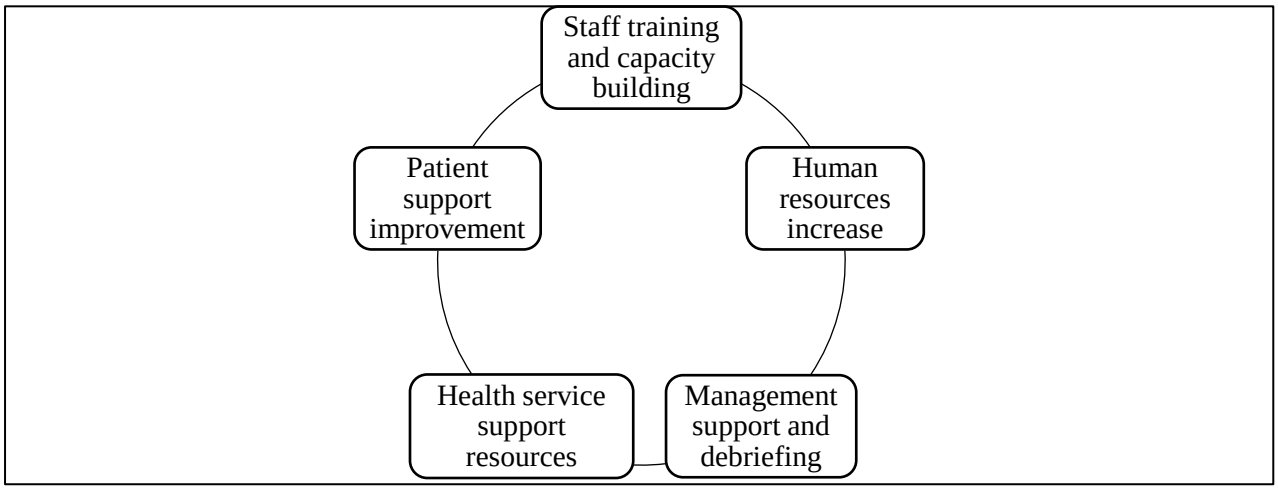


Figure 3.5: Proposed recommendations for NIMART improvement

Subtheme 1: Staff training

Most participants proposed increasing nurses and in addition, decentralised, and pre-service NIMART training. They felt that this would help them better manage the workload as well as ensuring accuracy

in NIMART implementation. Decentralising training to sub-districts would also mean more nurses being trained. The group of concern was the community service nurses who commence work without NIMART skills in the already short-staffed facilities:

> *"…if more nurses can be trained and then I think if we can do that, we will help a lot of patients more because if... let me say, I'm not even in for the day and the other sister NIMART trained can also help the patient because as I said we are only a few who are trained. Then we won't miss things, you will pick up immediately what you are supposed to do…" (P 3, female, 43 years)*

> *"They must or maybe they must bring the workshops to the sub districts instead of maybe doing it from the district level." (P 13, male, 23 years)*

The importance of pre-service NIMART training so community service nurses come ready to manage patients with HIV. A proposal was made that these nurses be trained in the first weeks prior to commencing work as professional nurses:

> *"So, the comm serve will practise and they will see patients who are HIV positive where they are expected to render a service that they are not yet trained on. I think that the colleges must include that in their curriculum. Then from the management or the HRD [Human Resource Development, maybe they must also have a plan to say for all the comm serves, before they start or they resume their duties they must be given necessary training on NIMART, maybe for the first two weeks." (P 13, male, 28 years).*

NIMART mentoring was also mentioned as a tool to improve NIMART implementation:

> *"Even the mentors, there must be mentors so that they can come and check with us if we have any challenges or what." (P 7, female, 43 years).*

Subtheme 2: Human resource increase

Increasing staff also meant improving the living conditions for nurses in the district:

> *"In the first place the accommodation because the accommodation of the nurses are in a bad shape" (P 12, female, 53 years).*

There was also a point raised on remuneration for NIMART as it is deemed a specialty:

> *"Maybe the last thing I can say is that I don't know… maybe NIMART trained nurses in the government sector needs to be remunerated somehow, they need to be remunerated. Because I*

think it's a… I would take it as a speciality. Because dealing with HIV alone it's a lot of work and you have to be trained to be able to do that." (P 11, female, 36 years).

The need for the increase of staff to improve waiting times was also raised that for as long as there is staff shortage, it is difficult to adhere to the ideal waiting times spent by patients in a clinic:

"…that's why I'm saying for us to render this effective care (eh) let the management assist, let them help these clinics have treatment, equipment, nurses, and other stuff, you understand? So that even us we can limit the waiting area because normally we are saying waiting area is 10 minutes but when the clinic is packed and you are alone it can no longer be 10 minutes waiting area, it will be longer than that. So that's why am saying they must assist us the management, they must bring more nurses these 10 minutes thing it can work now if you are more than one" (P 10, male, 37 years).

Subtheme 3: Management support and debriefing

Management support was also a factor that participants felt strongly could contribute to improving NIMART implementation:

"The only thing that needs to be strengthened is like the team work. We need to strengthen the team work on a level of District or sub district support." (P 14, male, 31 years)

"And also, our management to have the mentors and also the management to come for support. That's the main thing because you will be working on your own not knowing if you are doing the right thing or what. So, the management should at least maybe come and sit with us once, just to hear if we are ok, just friendly visits but they never did that. Only they come to drop something, we have to do this and this and then they go." (P 15, female, 35 years)

For their optimum mental health, some participants expressed the need for debriefing and taking part in extra-mural activities:

"The other thing (uhmm) I think as nurses because we are working under these conditions that are pressurising, mind you we have families. We need to be counselled also, at least once in a year. We need to attend the exercises; we don't attend exercises because of this shortage. We need to be active." (P 6, female, 39 years).

"The thing is we working hard in a situation whereby there is a … when you arrive home you are tired, you see. At least if we are many, we are doing your 40 patients only is something." (P5, female, 49 years).

The participants strongly expressed being overwhelmed by the workload and staff shortage and needing for counselling to talk about patient/nurse issues:

"What I can recommend, I think they should increase staff, they should increase staff…there is a lack of staff… and also the training part of it, they must train. They mustn't keep on say there is a NIMART trained nurse there and just leave it like that. Because the facility's headcount is too big the number is too big, we got a large number… Like I have said, when am not around those who are supposed to be initiated, they are not, they are waiting for me to come back." (P 7, female, 43 years).

"No, patients/nurse interaction [emphasis], *because there are those patients whereby when you enter because she is still depressed about what is going on, she's ill, at home they are not taking well, sometimes she does not have food and those things, there is social problems; not talking to you well. So, you have not to talk you see. Sometimes you are not working well, you are not happy at work; you don't know the one who's coming in what is he going to say to me. You see those things and you can't say ["client why did you default for a month?"]" (P 5, female, 49 years).*

Subtheme 4: Health service support resources

One participant strongly raised the importance of improving all support services such as drug availability for the prevention of treatment failure, access to sessional doctors, and patient transport for NIMART implementation to be effective:

"Drugs must be paid on time so that they don't tell us about the supplier, because we got nothing to do with the supplier, and it's far from us that one. I think all those things…I think if they can work, we get treatment on time, have at least a visiting doctor and arrange transport for patients. So that we can refer these patients and hire more nurses." P 10, male, 37 years).

The need for a less cumbersome patient referral process and doctor availability was raised strongly from a participant working in a facility more than 50km away from the district hospital. Access to laboratory services was also a factor the nurses felt could be improved:

"If we can have a visiting doctor so that we can assist our patients because of for them they are not working, so for us to refer patients to district it's straining for them and its costing, you understand?" (P 10, male. 37 years)

"…they can just because this clinic is big, we can at least have a laboratory with a lab assistant." (P 8, female, 53 years)

There was also a call on making work easier for nurses who choose to work in the rural areas through the provision of resources such as an ambulance to make their job lighter:

"They must at least for those who are still remaining in the rural they must provide the resources so that it will make our job easier for an example: If we can reduce the ambulance turnaround time because we are not having any ambulance that is placed for this clinic this side. If we can have one allocated maybe for these patients this side, it will be easier for us when we want to refer those patients who need urgent treatment." (P 10, male, 37 years)

Subtheme 5: Patient support system improvement

Tailored patient education and intensive counselling while considering patient literacy level was raised by most participants as a factor that could improve adherence to ART:

"Yes, but even if we can work together. If I can give you any tablet, right? But not telling you the importance of taking that treatment, it's very simple of you to default to treatment, but if I tell you every time when you come "this treatment 1…2…3", I don't think chances of you leaving the treatment are very slim." (P 9, female, 31 years)

Most of them are from the farms, they don't even know how you can contract HIV! That's the problem…Even if you teach them, you can just ask "what did I say?"… They will just make stories." (P 8, female, 53 years)

Participants mentioned rendering patient centred services instead of what suits the nurse as best way of serving patients:

"The route that we must take as a NIMART trained nurses in this facility. We need to… like I said previously the most important thing is equipping our clients intensive HIV counselling and supermarket approach because most of the time us nurses we tend to work (to suit us to be comfortable: translated in Setswana) only to find out forgetting that we must work according to patients for patients to be comfortable at the end of the day." (P 9, female, 31 years).

One participant raised the importance of collaborating with the existing community structures of authority such as traditional leaders to increase awareness of ART compliance:

> *"And I think also from our side because we were having this high rate of defaulters and then we went to Kgotla [traditional tribal offices] and addressed this issue to the community. I think it's also important for the department to do that, to help us raise awareness." (P 11, female, 31 years).*

The nurses proposed standardising care to suit the farm labourer's context to facilitate treatment adherence according to individual needs:

> *"I think nurses also have to consider such conditions maybe if a patient from the farms comes to the facility and the explains that she cannot come regularly for her visits maybe we will make an exception to give the patient treatment for two months or for three months depending on the blood results and other management that we need to take." (P 13, male, 28 years)*

> *"But now at least we talk to them and try to make means that they can come at this time, and I will squeeze you, you see. They come even Saturdays and Sundays; we initiate them." P 15, female, 35 years)*

CHAPTER SUMMARY

Through in-depth interviews with participants in this study, this chapter has managed to describe the findings as perceived and experienced by nurses in the context of Dr RSM district. Five key themes emerged from this study. Perceptions about the NIMART programme mostly related to a task-shifting strategy to manage HIV and programme benefits; Contextual issues affecting access to, and adherence to NIMART; Enablers and/or Inhibitors of the NIMART programme; multidisciplinary teams, and skilled personnel issues and intrinsic motivations among nurses. Inhibitors of NIMART implementation included human Resources for health issues; service integration challenges; insufficient management and health service support systems; capacity building issues; ART availability and patient compliance issues and nurse motivation issues. The chapter finally, provided proposed recommendations based on what the respondents suggested.

CHAPTER FOUR

DISCUSSION

4.1 INTRODUCTION

The aim of this study was to explore the experiences and perceptions of nurses in implementing NIMART in Dr RSM district. To answer the main research question, the researcher employed a qualitative exploratory study design located in an interpretive paradigm. This chapter discusses the study findings in line with the three objectives of the study: Firstly, nurse's perceptions of the NIMART programme from its inception in 2010 to 2017. Secondly, nurses' perceptions and experiences of the factors enhancing and/or inhibiting the implementation of NIMART in the Dr RSM district from 2010 to 2017. Lastly, recommendations for improving the NIMART programme service offerings are presented.

4.2 Theme 1: Nurse perceptions of the NIMART programme

This theme outlines the meaning and implications of the findings in line with study objective one, which sought to explore nurse's perceptions of the NIMART programme from its inception in 2010 to 2017. Under this theme, the nurses expressed their perceptions of NIMART programme around the clinical management of patients on ART, task-shifting, and NIMART benefits for patients. The nurses' understanding of NIMART programme was mainly at operational level in relation to the challenges they and their patients were facing.

4.2.1 A Task-shifting strategy to manage HIV

Although the benefits of NIMART were discussed, the nurses in this study perceived NIMART as a task-shifting strategy to ease the workload from the doctors in an already resource constrained public health system. Nurses also perceived NIMART tasks as shifting from NIMART trained nurses to enrolled nurses to manage TB/HIV patients. This was mainly done through supervision of these untrained nurses, and it was common whenever there was staff shortage. Although, it is a WHO mandated strategy to manage human resources challenges, in the Sub-Saharan region, which is heavily burdened by HIV, (WHO, 2010a), it brings about nurse dissatisfaction wherever resources are limited (Crowley & Mayers, 2015). A systemic review of the literature and the empirical findings has shown that NIMART has increased clinical skills and access for patients; is cost-effective and improve quality of care for patients. As Callaghan et al (2010) had argued, shortage of human resources is the biggest

threat to the success of NIMART. This suggests that human resources, and contextual challenges should be carefully planned for NIMART to be effective.

4.2.2 NIMART programme benefits

Besides the nurses 'perception that NIMART overburdens them with the work cut out for doctors, this study established that NIMART promoted early access to ART and was cost-effective as compared to centralised hospital care. The findings in this study further concurred with the previous studies that NIMART had many benefits for patients and nurses; provided necessary training, support and mentorship (Shumbusho et al., 2009, Davies et al., 2013, Jobson et al., 2017, Uebel et al., 2011, Long et al., 2016, Georgeu et al., 2012). The findings also demonstrated that the benefits of NIMART outweighed the health system challenges faced by nurses. Furthermore, decentralising ART and implementing NIMART helped improve access to health services, as well as improve patient clinical outcomes.

4.3 Theme 2: Contextual elements affecting access and adherence to NIMART

This theme aligns with study objective number two which focused on nurse's perceptions and experiences of factors promoting and/or inhibiting the implementation of NIMART in rural Dr RS Mompati District from 2010 to 2017. Under this theme, rurality challenges such as long distances and transportation costs; unique challenges of farmworkers; staff retention and attrition; socio-cultural factors; social norms; and socio-political and governance factors were reported as inhibitors to NIMART implementation project which eventually affected access to, and adherence to NIMART for nurses and patients.

4.3.1 Rurality Challenges

- ***Long distance travel and transportation costs***

In this study, participants were concerned with long distances travel, and high transportation costs whenever patients wanted to access treatment. This response was specifically said about farmworkers, and cross-border patients who usually defaulted treatment as a result. Relative to this, a sizeable number of nurses re-echoed their inability to review patients every four weeks because of patients' lack of money to cover the long-distance transport costs when due for their follow-up appointments. While decentralisation had helped make availability of healthcare services, including NIMART in rural areas, affordability and accessibility were still problematic (Georgeu et al., 2012, Cleary et al., 2012).

Since Dr RSM district is vast and sparsely populated, patients have had to cover long distance on foot or paying excessive transport costs, which have led to many patients defaulting treatment (Sasaki et al., 2012). To this end, nurses have been compelled to consider the pay days for farmworkers so that once they get paid, they can use that money for transportation. The findings from Harris *et al* further confirm that access to healthcare services has been a serious problem and a challenge among poor black especially those in rural areas (Harris et al., 2011b). Indeed, Dr RSM district is largely rural with low literacy levels, and most of the people work in the surrounding farms and small towns.

People bypassing designated facilities in provinces, districts and sub-districts is common in Dr RSM. Similarly, it was reported that patients who cross the district and sub-district borders to access ART were also serving as obstacles to the implementation of NIMART. These people usually did so as a means to evade stigma within their communities. Furthermore, with the emergence of new informal settlements, which had no basic services such as healthcare facilities, it is evident that town planning did not often consider the basic needs of the population. Studies have nevertheless shown that migration leads to clients' loss to follow up to ART as patients cannot afford long distances travel (Bygrave et al., 2010). As a result of this, rural populations have often accessed health-services less than those based in urban areas (Fatti et al., 2010). Access challenges have also affected retention in care, and most of the times, nurses get creative on how to go around patient challenges to meet their needs for ART.

- ***Challenges unique to farmworkers***

The findings demonstrated that farmworkers' human rights were usually violated as they were not allowed to attend clinics at other times. The farm owners nevertheless allowed mobile clinics to treat the patients' onsite for a certain limited time. It was established that these farms are often far from health facilities, hence transportation costs were often prohibitive. These, then made many patients skip their medical appointments. Similarly, nurses argued that there was usually poor patronage during the middle of the month such that these patients could only be booked month ends when salaries are there. Moreover, farm owners were often regarded as being oppressive and inconsiderate about their labourer's health. This finding confirms the assertion that South African health policy lacks migration-awareness and mobility-competencies so as to serve the needs of the farmworkers and migrant workers (Gruchy and Vearey, 2020). Indeed, Universal Health Coverage cannot be achieved if the most marginalised populations-of farmworkers, do not access treatment.

- ***Poor staff retention and attrition***

Staff retention is often a challenge in rural areas since they lack many social amenities (Versteeg et al., 2013). This study found that lack of social amenities; poor remuneration for PHC qualification, and lack of adequate working conditions were all key drivers for the exodus of nurses from the district (Pillay, 2009). This study established that many nurses left the district after their community service period due to frustrations emanating from lack of good accommodation, good social amenities, poor working conditions, and lack of equipment. These results concurred with the findings from Kenya, which established that nurses are not motivated to stay in areas where they experienced discomfort in their work, and personal environment (Ojakaa et al., 2014). The studies also showed that adequate resources do motivate nurses to do their work diligently (Uebel et al., 2011, Versteeg et al., 2013). Furthermore, poor staff retention has also helped increase workload among the remaining nurses.

The rural context factor has also rendered the Dr RSM facilities difficult for nurses to live in. Besides, poor infrastructure and roads in the rural areas have also forced nurses to migrate to urban areas where social amenities, infrastructure and entertainment are of high standards (Cooke et al., 2011). Like in other studies, the current study also established that the Occupation Specific Dispensation (OSD) and rural allowance implementation have all shown that there are some discrepancies among the nurses, and doctors, which often leave these nurses dissatisfied (Ditlopo et al., 2011b, Ditlopo et al., 2013). It has however transpired in previous studies and in this study that nurses are motivated by working conditions compared to financial incentives (George et al., 2013).

This suggests that for the NIMART programme to be effective, the above challenges must be considered and addressed. Accordingly, there is need for implementation of strategies based on the WHO recommendations on increasing access to health-workers in remote areas. This could be achieved through improved retention across the five core categories, such "education, regulatory strategies, financial incentives, personal and professional support" (World Health Organization, 2010). Working groups in South Africa have also already tabled and contextualised short- and long term HRH strategies for implementation based on the South African adaptations recommendations (Cooke et al., 2011). It is recommended that strategies, which address the root cause for nurse attrition should be implemented and monitored for effectiveness.

4.3.2 Socio-cultural factors

In this study, socio-cultural factors were also examined alongside traditional values and beliefs. It was reported that socio-cultural factors when treating rural patients could enhance adherence to medicine and retention of patients**.** This study demonstrated that many patients relied on traditional medicines, which made them seek clinical support very late. The study established that treating patients with herbal medicine and later starting ART had increased workload for nurses. This was mainly because, these patients might have developed opportunistic infections such as cancers, TB, and other which need to be treated concurrently. There were also reported cases of side effects due to drug interactions and alterations. Mixing medicines was also reported as increasing on patients' expenses which would have otherwise gone towards transportation costs and other services. It is also reported that patients usually use traditional healers due to cultural beliefs in their effectiveness, assured privacy, and being heard and understood unlike when treated in hospitals (Moshabela et al., 2017) (Nxumalo et al., 2011). These findings agree with a study which established that nurses failed to reach patients with health education due to illiteracy, socio-cultural factors, and biological factors such as age and gender. Thus patients continue to seek help where they are most comfortable and report to bio-medical services when all else fail (Moshabela et al., 2012).

Indeed gender and age differences have been shown to influence health services use by patients, especially males (Arnesen et al., 2017a). Patients have reported the need for privacy and feeling respected by health workers as a motivator for healthcare use (Moshabela et al., 2012). This study highlighted the discomfort experienced by male nurses whenever making physical examination of the elderly females and discussing issues on condom use and sexual behaviours. It was argued that discussions on sexual topics with elders had often contradicted their understanding of cultural values and respect. Essentially, effective communication on ART literacy also becomes tricky as African culture demands children should not see private parts of the elders intentionally or accidentally since that is a taboo. Similar findings were also found in a study where gender differences were considered as barriers to communication between the youth and elderly females (Slinkard and Kazer, 2011). Developing effective and culture sensitive communication skills with the elderly is critical to care as one nurse found that it gets better with practice.

4.3.3 Social norms

Women in low socio-economic contexts have always been prone to HIV infections due to illiteracy, and their gender role which is often seen as less than that of men (Klaas et al., 2018). This study

established that female clients were unable to disclose their HIV status to their spouses for fears of rejection and being divorced. Since most of rural women are illiterate and unemployable, it follows that divorce would make them become destitute as they have lost their sources of income especially when they are pregnant and have children. These findings concur with the Eastern Cape study, where many women did not want to disclose their HIV status for fears of prejudice, rejection, and violence (Adeniyi et al., 2017). Furthermore, full male dependency disempowers women as they cannot make informed choices about their health rights. This then leads to new HIV infections, child HIV transmission and/or loss of follow-up to ART care. These findings imply that social issues and norms can impact directly on HIV/AIDS discourse on the transmission, treatment, and retention in care, which can then overburden the healthcare system.

The population in Dr RSM is highly migrant due to migrant workers and students. As men go out to work, women, children, and the elderly are often at home. These men are generally considered as breadwinners and sometimes decision makers in their families. On this basis, this study affirmed that although women know their health rights, they still are unable to negotiate for condom use during sex to prevent cross-infection. It was also revealed that rural women are usually too reserved and afraid to speak up about sexual issues in their houses. In Nepal for example, studies found that although women were literate and knowledgeable about HIV transmission risks, they were still unable to discuss safe sex issues with their male partners (Aryal et al., 2016). Furthermore, another study established that over 51% of males who were on ART for less than two years were more likely to abandon the treatment due to male denialism and masculinity (Arnesen et al., 2017a).

Precisely, this section has revealed that migration, community norms, and male denialism of their HIV status have often hindered early ART start, adherence, and retention in care. Gender roles still play a noticeably big role in health behaviours of populations.

4.3.4 Socio-political and governance factors

This study established that political and governance issues had led to continued strikes which eventually hampered the success of NIMART. These strikes disrupted the medical supply chain hence leaving the clinics dry. Some nurses believed that there was lack of transparency and accountability by managers. This study also established that failure to pay the suppliers on time was also one of the key issues that led to drug shortage.

Indeed, these also impacted on capacity building for NIMART training. The disruption on drug supply chain led to nurse improvisation through inter-facility medicine borrowing to serve the increasing numbers of patients (Hodes et al., 2017, Bateman, 2013). This study also established that drug chain interruption did not result into any deaths as was the case in Free State province (El-Khatib and Richter, 2009). Moreover, ART drug shortages were reported as having the ability to cause drug resistance, and HIV morbidity. In addition, lack of accountability and transparency by management had increased frustration among the nurses. More so lack of management accountability has created a hostile working environment. As it was argued, managers should treat rural nurses as scarce resources and support them adequately (Cooke et al., 2011).

4.4 Theme 3: Factors that facilitate NIMART implementation

This theme aligns with Objective two which aimed to explore the factors that facilitate and inhibit NIMART implementation in DR RSM district. This section begins with the factors that facilitated the implementation of NIMART. This will be followed by the inhibitors and their implications on NIMART.

4.4.1 Functional health information management system and clinical guidelines

This study found that the Tier.net system was more helpful in tracking patients who usually missed appointments and aided proactive 'actioning' of viral load uptake than the paper-based registers previously used. While the Limpopo study found that Health Information Management Systems (HIMS) were too cumbersome (Shihundla et al., 2016), this study established that Tier.net, as a HIMS was very helpful in HIV/AIDS management. As argued by Makhado and others, the availability of functional HIMS and adherence to clinical guidelines cannot be ignored as they help inform nurses about timeous linkage to care, clinical monitoring and, care and good clinical outcomes (Visser et al., 2018) (Makhado et al., 2020, Georgeu et al., 2012).

4.4.2 Multidisciplinary team and skilled personnel

This study established that multi-disciplinary teams such as HIV programme coordinators, facility managers, doctors, Community Healthcare Workers (CHWs), and HIV counsellors had been instrumental in supporting NIMART implementation. Although access to doctors support is helpful for nurses at PHC level (Mabelane et al., 2016), this study established that such support was absent. This made nurses create their own ways of dealing with the numerous challenges they faced including complicated cases, drug, and staff shortages.

As Makhado and others had established, this study found that active managerial support within NIMART programme was also praised for boosting the morale of nurses, where it was rendered(Makhado et al., 2020, Mboweni and Makhado, 2019, Nyasulu et al., 2012, Jones and Cameron, 2017, Davies et al., 2013). In NIMART the lower staff cadres had also proved to be effective for patients and nurses. These cadres however were not fully recognised even though they contributed towards the improvement of defaulters of less than 2% in Lusikisiki (Bedelu et al., 2007). These findings suggest that it is mostly the lower staff cadres (counsellors and CHWs) who play critical roles in patients care in the absence of nurses and doctors.

4.4.3 Impactful counselling

This study established that thorough counselling on HIV/AIDS and treatment plan is vital when treating newly diagnosed patients. It found that nurses equally benefited from effective counselling done by the counsellors. It emerged that at any stage of disease advancement, thorough counselling coupled with a strong support system improve the patient response to treatment. In a study in rural KZN, for example, CW expressed that patients are affected by psychosocial issues and other facility level barriers that make adherence to drugs difficult. It was concluded that ongoing counselling is critical at diagnosis and throughout the course of treatment (Loeliger et al., 2016).

4.4.4 Intrinsic nurse motivation

This study established intrinsic motivation as a unique factor that bolstered NIMART implementation. Nurses in rural areas were experiencing high burnout rates due to job-related stress, over-working pressure, over workload, and lack of management support (Dugani et al., 2018). This study however found that nurses were highly motivated to work, and considered their career as a calling anchored in empathy and patient outcomes (George et al., 2010, Davies et al., 2013), similar to the current findings. Moreover, nurses have often pledged to serve patients diligently by prioritising the rights of patients to alleviate patients' suffering (White et al., 2015). In addition, nurse-patient relationships were reported to bring motivation to nurses as they felt that taking such responsibility was meant to restore the health of their patients (Davies et al., 2013) (Goudge et al., 2009). This study then affirmed that both nurses and patients had roles and responsibilities to play which contributed towards successful working relationships and improved patients' health.

4.5 Theme 4: Factors that inhibit NIMART implementation

This theme is an extension of Theme 3 on the factors that influence the implementation on NIMART.

4.5.1 Human Resources for health challenges

- ***Staff shortage***

This study has established that the shortage of staff was further affected by staff leave and rotation; training attendance, and patient preferences to attend certain facilities to evade stigma in an already staff deprived system. The mobile clinics' nurses had experienced frustration due to lack of adequate space and supplies for rendering mobile services. These findings support the 5 years' NIMART mentoring evaluation study in SA which reported that staff shortage and lack of adequate rooms in the clinics had compromised the implementation of ART (Cameron et al., 2012a). Similarly, staff shortage was also ranked high in a qualitative study on NIMART which reported that nurse frustration was due to heavy workloads and stressful schedules (Davies et al., 2013). The nurses also reported when supervising untrained staff on NIMART, one room would be used by two nurses in order to save on space, while further increasing shortage. This finding affirms what Davies established wherein he found that nurses become "innovative" to deal with the HRH challenges they face (Davies et al., 2013). In addition, a systematic review of task shifting for HIV care in Africa concluded that task-shifting should be implemented with caution where HRH issues exist as the success of such programmes can be negatively affected (Callaghan et al., 2010).

- ***Increased workload***

This study showed that high workload was also related to staff shortage and lack of NIMART skills. This was also established by Visser who found that although NIMART yields good patient outcomes, nurses were affected by job dissatisfaction due to staff shortages and high workload (Visser et al., 2018). Furthermore, the UTT policy which calls for increased ART initiation, although beneficial, it did not seem to help the nurses, working within understaffed environments as it increased their workload (Plazy et al., 2017). It was reported that initiating a newly diagnosed patient is time consuming, and that a lot of groundwork has to be done (Plazy et al., 2017). This work leads to fatigue, which eventually compromises the quality of NIMART (Shihundla et al., 2016) rendered. As Davies *et al*, contended, lack of lower cadres could lead to nurses doing everything, becoming *"the jack of all trades"*. This confirms the findings that the push of other ancillary tasks to nurses, such as keeping patient files and monitoring pharmacy records, compromised the quality of NIMART and increased patient waiting times (Davies et al., 2013).

- ***Prolonged waiting times***

ART initiation is time consuming from history taking, clinical assessment, recording, and counselling ensuring that patients understand. This finding a confirms previous study findings that nurses take up to one hour to initiate ART on one patient (Davies et al., 2013). It has also been reported that the amount of recording in the different PHC registers is time consuming, and leads to incomplete documentation while nurses chase to *"push the line"* (Shihundla et al., 2016). As a result, the nurses are always faced with hostility by patients in the waiting area (Mathibe et al., 2015). The long waiting times also affect the smooth NIMART implementation, and has a ripple effect on the patient satisfaction and the wellness of staff (Eilers, 2004) .

In 2016, South Africa introduced the Ideal Clinic Model to improve the quality of services in the health sector http://www.idealclinic.org.za/. A 12 month Ideal Clinic-based health systems strengthening activity study focusing on facility reorganisation and patient appointment scheduling in KwaZulu Natal found improved waiting times after soon after its introduction (Egbujie et al., 2018). Although there was a slight difference in waiting times outcomes, the health systems improvement strategies prove to be efficient, patient load per nurse, type of service received and time of patient arrival in facilities needed improvement as they impact waiting time. Dr RSM district will need to re-evaluate how they schedule patients that are affected by long distance travels and high costs to alleviate the challenges of unscheduled patient arrivals. This proves that with determination to apply quality improvement strategies such as the appointment system, waiting times can significantly be decreased.

4.5.2 Service integration challenges

Dr RSM has come a long way in improving ART service delivery. In the earlier years of NIMART, clients were only seen in a specific room with a specific nurse who was NIMART trained, fuelling stigma and lack of privacy. In this study, service integration was implemented, however it was also said to fuel the workload for the already short - staffed facilities with little NIMART skills. The participants felt that integration was not working in their favour especially in busy departments such as antenatal care where six out of ten pregnant women may be HIV positive, highlighting the magnitude of the workload.

Although integration was found to be beneficial for patients with regard to privacy and reduction of stigma, for nurses it creates delays, poor patient care, and patient dissatisfaction due to the long times spent in a consulting room (Mathibe et al., 2015). This study also found that facilities would implement

disintegrated services for each day of the week, which would mainly disadvantage farmworker patients. This study result agrees with the literature that observed that successful integration in any setting is negatively affected by systemic challenges such as human resource and capacity building challenges (Kalonji and Mahomed, 2019). In Dr RSMD, stigma, facility structural challenges and NIMART skills shortage had affected successful service integration (Kalonji and Mahomed, 2019). Integrated Clinical Services Management (ICSM) was also introduced within the Ideal Clinic Model as key to the delivery of quality integrated care for chronic and acute patients (NDoH, 2018). Efforts need to be built in strengthening this existing quality improvement model to ensure effective NIMART implementation.

4.5.3 Insufficient management and health service support systems

- ***Insufficient management support***

Although there were positive reports on management support by managers and programme coordinators from easily accessible facilities, long distance travel was highlighted as a barrier to access support from programme coordinators and managers. The participants raised poor management support that hampered ongoing capacity building, especially with new guidelines and policies. Long distance travel was also a contributory factor making outreach to remote facilities difficult for programme coordinators, especially for the most remote facilities. In addition, the participants also felt "unheard" by managers who would come once in three months, and then fail to spend an entire day at the facility to better understand the nurses' daily struggles. These findings are congruent with literature search on task-shifting, which identified inadequate supervision support and mentoring as a challenge to successful NIMART implementation (Crowley and Mayers, 2015, Makhado et al., 2018). Research has also found that lack of effective communication may increase staff frustration and could rob NIMART inexperienced nurses of the chance to learn (Davies et al., 2013).Where nurses are poorly supported, programme execution is compromised.

- ***Laboratory services***

HIV viral load monitoring is important in measuring treatment outcomes of patients on ART. A study in another district, NMM in the NW Province revealed a 54% viral load collection and 56% viral suppression at 12 months after ART start (Mboweni and Makhado, 2019) despite over 90% of nurses being trained. The study attributed these poor findings to overcrowded facilities and overworked staff who could not adhere to clinical guidelines. However, in Dr RSM, the laboratories are centrally located at the district and regional hospitals. This study found that due to long distance travel, specimen

collection times were not consistent with patient needs. For instance, specimen was collected for transportation at 10:30 each day except for weekends, and this caused ART initiations without blood investigations. In addition, the long results turnaround time add to the non-use of the blood results in patient care (Visser et al., 2018). However, nurses had found ways to work around the specimen collection, and rendering a comprehensive service, although monitoring for clients who live far from the healthcare facilities was often difficult. These findings are congruent with the findings from a qualitative study of point-of-care testing in SA that the laboratory logistical issues and delays cause frustration for frontline workers (Engel et al., 2015). The findings in this study also shows that poor viral load monitoring could impact on patient clinical outcomes, despite nurses trying their best to manage with the meagre resources they had.

- ***Patient transportation and referrals***

Although decentralisation has increased the proximity of the healthcare services to the communities in SA, ambulance availability, official transport for referrals to secondary services and mobile clinic breakdowns have often affected access to the needed PHC services including NIMART (Goudge et al., 2009, Georgeu et al., 2012) . This study found that hospital referrals are not only impaired by transport and logistic issues but also poor communication, and bad attitude between referring nurses and the receiving doctors. It was also established that lack of feedback by the receiving doctors; long ambulance turnaround, time and mobile clinic breakdowns had also hindered the operations of these clinics. Often, nurses have had to limit their diagnoses and reasons for referrals to avoid being misunderstood by the receiving doctors.

It is generally argued that poor communication has also caused frustration among patients especially when such patients are told to go back to the hospital for their blood results. These findings agree with a qualitative study that sought to investigate the implementation of the principles of PHC in a rural area in SA, which established that transport, and communication on referrals between primary and referring facility, distance, and time loss were some of the challenges that impacted effective PHC implementation including NIMART (Visagie and Schneider, 2014). This study has also revealed that nurses felt that their skills and narratives were usually undermined by the receiving doctors. This study further demonstrated that nurses face different challenges that affected referral pathways in most rural districts. It therefore suggested that PHC managers should be well equipped and be held accountable for the availability of supplies and adequately serviced ambulances. It also suggested that hospital referrals can be reduced in this setting if doctors from referral hospitals could make visits to all

facilities on a regular basis. Such sessions would then provide added benefits of case discussions, and skills transfer between nurses and doctors and end miscommunication.

- ***Health information management***

This study found that data capturing through the Tier.net system and reporting due to lack of data capturers were still an issue. Other challenges included non-availability of clinical stationery and printing supplies which often restricted the amounts of reports to make. On the contrary, a Limpopo study found out that making multiple registers and overwork load were the key challenges that hindered the availability of complete patient information (Shihundla et al., 2016). In this study, health information management was also affected more by resource unavailability than workload. Workload in this study was a contributory factor to recording and reporting errors. Similarly, challenges in HIMS such as lack of clinical stationery and inaccurate recording of patient's files had also emanated from poor management of resources, and clinical execution at facility level. In this study, lack of data capturers, clinical stationery and printing material amplify the challenge of poor management.

4.5.4 Capacity building challenges

This study has also established that capacity building initiatives such as staff training and mentoring were provided but not adequately done. The WHO recommends clinical mentoring to fast-track and support HIV management (WHO, 2008). Most participants however, complained of lacking clinical mentoring; lack of a tailored mentoring approach, and being allocated to other roles while on NIMART training. Another study in the Dr RSM district also revealed some bottlenecks in ongoing capacitation of nurses on NIMART which was mainly through the allocation of nurses to other tasks other than NIMART (Motlokoa, 2016). Moreover, some nurses went as far as doing their own research online for easy-to-use guidelines. The findings in this study have showed that there was lack of planned, and structured mentoring process, and mentors availability whenever the mentee sought assistance on the spot (Jobson et al., 2019). In this study, mentoring was left to the DSP's device, and where the DSP pulls out of that district, the nurses were left abandoned for ongoing capacitation (Jones and Cameron, 2017). From these findings, it is suggested that districts should lead the training and mentoring staff cadres at PHC level to aid standardisation and sustainability. Furthermore, ongoing capacity building is important for quality NIMART provision, as a mentoring evaluation study had previously showed that despite mentoring was costly, mentored nurses developed increased confidence in managing

complex cases, and were enthusiastic in completing the Portfolio of Evidence cases to earn the competency certificates (Jones and Cameron, 2017).

4.5.5 ART unavailability and poor patient compliance

The first nationwide stockout survey found a high prevalence rate of ART stock-outs, and there were differences on internal dynamics leading to the stock-outs per province (Hwang et al., 2019). This observation concurred with the findings of this study, which established that nurses were improvising by borrowing drugs from other facilities, referring clients, and even giving patients suboptimal regimens. Furthermore, in this survey, ART stock-outs were more common in first and single drugs used in clients contraindicated to fixed dose combinations and those who are drug resistant (Hwang et al., 2019). At the time of conducting this study, there was a moratorium which affected ART, and other essential medicines availability in the NW Province[8]. The state of drug shortage had left nurses in frustration, especially those working in the most remote facilities, as borrowing from nearby facilities would be difficult. Under normal circumstances, there were no stock outs as they adhered to medicines ordering protocols. This was contrary to the findings by Bateman *et al* in the Eastern Cape where it established that drug stores were issuing amounts of drugs not ordered as per need (Bateman, 2013).

Some nurses linked this moratorium to the health department being unable to pay the medicine suppliers at the provincial depot. This led nurses to improvising solutions by way of borrowing ARVs from nearby facilities; creating own dosages by using different formulations and shorten the interval for medicine collection to try and cover all patients (STOCKOUTS, 2017). The above practices could potentially lead to virological failure, and drug toxicity due to incorrect dosing (Bangsberg et al., 2006). Again, loss to follow up (LTFU) due to required frequent clinic visits over long distances had also been reported elsewhere (Mori and Owenya, 2014).To prevent these risks during crisis times, districts should strengthen the supply chain management systems. Since patients suffering from poor drug supplies and general access to healthcare services are mainly those from impoverished rural communities such as Dr RSM, such as farmworkers, it is then critical for the districts to consider these situations as emergency (Goudge et al., 2009). Policy implementation such as NIMART should make allowance for inclusiveness of patients who find it difficult to access healthcare facilities, through rural proofing SOPs (Rural Health Advocacy Project, 2015). Accountability and understanding of the health system by managers would be key in instances like these, and will prevent nurse anxiety in the execution of NIMART (Harris et al., 2011a).

[8] RHAP Statement on North West Health Emergency

4.5.6 Nurse demotivation

As much as the participants expressed that motivation came from their ethical role to serve humanity, factors leading to nurse demotivation in this study were related to the context in which they work. A new finding was the issue outside the participants' control, the lack of healthcare facility access for farm labourers, and missing appointments due to power dynamics from farmers as employers. Farm workers are illiterate and they do suffer from poverty, thus standing up for their right to health against the unsupportive employer can be frightening (Klaas et al., 2018). Participants felt like they were failing these types of patients when unable to see them at regular appointments. These findings did not only highlight the plight of farmworkers, but also proved that access challenges for the different population groups were dynamic and could lead to implications such as "healer shopping," morbidity and even mortality (Harris et al., 2011b, Helen Schneider (UCT) and 2009, Gaede and Versteeg, 2011, Moshabela et al., 2012).

This study also established that lack of teamwork, planning and poor delegation of tasks caused a lot of frustration for the nurses. Mainly, this usually happened when NIMART trained nurses were on leave, and they delegated other staff cadres who had limited training. These findings are similar to what a systematic review on burnout found, which showed that frontline nurses in SA experienced high emotional exhaustion and depersonalisation (Dugani et al., 2018, Davies et al., 2013). Burnout can also lead to poor quality work with undesirable patient outcomes. Furthermore, poor remuneration for PHC as a speciality, working in mobile clinics, and wearing so many hats left nurses dissatisfied, asserting that nursing is no longer a profession but a career like any other.

The participants strongly reported that the current nurse salary is not enough in the current work context where they have to go beyond the line of duty to serve patients. These findings build on the previous results of a study which established that nurses were motivated to work in rural areas but only if compensation was satisfactory (Blaauw et al., 2010). Another study, however shows that even when compensated, nurses are still dissatisfied with previously adopted initiatives such as OSD and rural allowance (World Health Organization, 2010), and that to retain nurses and other healthcare workers in rural areas, the employer should begin to look beyond salaries (Ditlopo et al., 2011a) . Thus, listening to the nurses needs and cries about the challenges in their work context should be carefully considered by managers to ensure their satisfaction and possibility for retention (Versteeg et al., 2013, Callaghan et al., 2010)

4.6 Theme 5: Proposed recommendations for improving NIMART

This theme speaks to objective three which is to explore what nurses recommend as strategies for improving the quality of NIMART. The nurses were given an opportunity to answer the question on what they thought would help improve the quality of NIMART programme in the Dr RSM district. These recommendations were mainly related to HRH challenges and those issues that directly impacted their day-to-day work. Mainly, staff training, human resources increase; management support, debriefing, health service support resources, and patient support improvement were mentioned to be key in ensuring the quality of NIMART service delivery.

4.6.1 Staff training

It has been proven that successful NIMART implementation requires capacity building and clinical guidelines suitable for context, in addition to health service re-orienting (Mabelane et al., 2016). Decentralising, NIMART was highlighted as key to ensuring a broader reach of the skills to nurses in the subdistricts. It was argued that training which is centralised at district level has minimal impact as nurses need to reconsider leaving their duty offices and families behind and go far for training. Critical was the importance of introducing pre-service NIMART training at colleges and universities to alleviate non-NIMART skilled nurses to manage HIV. This suggests that NIMART should be regularised as a core module within nurse training institutions. Training should also be complimented by NIMART mentoring to ensure that there is quality in its implementation. It has been reported that facility to facility training at sub-district level should ensure full coverage of NIMART trained staff (Davies et al., 2013). Mentoring should also ensure that nurses are updated on the ever changing HIV guidelines, and the PHC environment (Jones and Cameron, 2017). In this way, increased NIMART skills coverage will have a broader reach to patients, rather than only depending on the select few that are trained.

4.6.2 Human resource increase

Human resources for health challenge is one area that has proven to be the biggest challenge in the goal to reach universal health coverage (Versteeg et al., 2013). In this scenario, there are insufficient numbers of nurses to take care of patients in the district to adhere to the stipulated ten-minute waiting time. It was raised that strategies that improve retention, such as improved accommodation and remuneration for NIMART should be implemented. Some lessons from ART decentralisation that resonate with these findings are those on urban and rural disparities. The studies had recommended adequate budgeting and resourcing of staff complement; remuneration for NIMART , and improving

nurses accommodation (Bedelu et al., 2007). While these strategies, do not propose any increase in staff numbers, they can as well help improve the nurse's morale as studies found that nurses were optimistic about NIMART implementation despite the HRH challenges they faced. And in doing so, nurses can be retained in such settings (Davies et al., 2013, Jones and Cameron, 2017).

4.6.3 Management support and debriefing

It has been proven that context specific leadership across all levels of the health system is empowering to teams, and could foster positive relationships (Gilson et al., 2017). Nurses also called for management that mentors and supports them consistently to alleviate the feeling of helplessness while they work alone in the remote facilities. These visits should not only be programmatic with top-down approaches, but also, serve as personal-check-in with staff. Increased anxiety could be alleviated by a pro-active management system that care for the well-being of its staff. Nurses who see well over forty patients a day, in the circumstances such as those of Dr RSM district, may have their work morale downgraded and face burnout, stress and anxiety to the detriment of their families. Management was called upon to improve working conditions, and mental health of the nurses. Relative to this, a study in Kenya found that managers who care for their employees' wellbeing demonstrate high levels of adaptability, even in the most resource constrained settings (Nyikuri et al., 2015). Based on these findings and the recommendations from the nurses, it is possible for district to build staff resilience through hands-on support. Facility performance reviews should be regularly conducted to ensure that there is compliance to quality standards and HRH issues addressed.

4.6.4 Health service support systems

This study highlighted the need for accountability for ART availability; adequate laboratory systems; smooth running patient transport and referral systems including visiting doctors to the remote facilities. Failure to meet these requirements for smooth NIMART provision could potentially lead patients shopping around for healthcare services, and even loss to follow up (Goudge et al., 2009). At the time of this study, the NW Province was under a moratorium which affected the availability of ARVs. The participants revealed that they would appreciate transparency even if managers had no solutions. Nurses had also always required transparency from management, especially where corruption was suspected. A literature review reiterated the flaws of bureaucratic accountability mechanisms that often disadvantage the service users, and frustrate the healthcare providers (Cleary et al., 2013). Another study observed that stewardship and leadership development on facility managers was critical for the smooth running of PHC services, including NIMART (Gilson et al., 2017).

4.6.5. Ineffective laboratory systems and referral services

There were also proposed recommendations related to ineffective laboratory systems for monitoring of viral load. These mainly looked at centralised laboratory systems, transportation and logistics for specimen and results turnaround time. According to Stevens *et al*, there are numerous bottlenecks that stitch specimen transportation and logistics from remote facilities (Stevens and Marshall, 2010a). In this study, it was recommended that an improved specimen collection service, and a decentralised laboratory system would be needed to mitigate results turnaround times. Improving laboratory systems would also have a positive effect on patients' long-distance travel and transport costs as it would ensure that patients receive their results and next appointment. These findings concur with the recommendations that decentralisation of viral-load testing technologies can close the gap of laboratory system disparities between rural and urban areas (Drain et al., 2019). This innovative strategy could however have been disastrous if not carefully planned and executed. A consultation between WHO and international agencies, and experts from different countries concluded that the health systems should be ready with the necessary resources, capacity building and quality assurance for decentralised laboratory services to be effective (Fonjungo et al., 2016, Mboera et al., 2015). It is worthwhile to explore the innovations and technologies with regard to laboratory systems (Stevens and Marshall, 2010b).

There were also recommendations that sought to relieve nurses from frustration and improve continuity of healthcare services, through improved referral systems. This would include patient transportation on ambulances, and access to a visiting doctor to the remote facilities. A study for example had established that expensive referrals to the district hospital maybe prevented if doctors are allowed to visit remote facilities in rural areas (Mojaki et al., 2011). Research has also reiterated that access to a visiting doctor and management support, even when issues cannot be resolved, could improve NIMART implementation (Mabelane et al., 2016). Similarly, Cooke *et al* had emphasised the need for outreach support services to rural areas by highlighting that it is cost-effective for managers and clinicians to reach out to the patients than patients being referred to a higher level of care, and this fosters continued learning (Cooke et al., 2011).

4.6.6 Patient support system improvement

The strong advocacy for improving patient support stemmed from the proven practice that impactful counselling and tailoring care and treatment to the patient needs may improve patient adherence. The plight of farm labourers' needs understanding and willingness by nurses to cater for their needs. Treatment success has also been shown to increase with patients' active participation in their care and

treatment (Makhado et al., 2018, Mabelane et al., 2016). Outside resource challenges, the nurses recommended that that there should be good nurse/patient interaction, and understanding of the treatment plan, for them to help, and guide each other effectively. (Goudge et al., 2009, Davies et al., 2013, Mabelane et al., 2016). The study also showed that impactful interactive counselling sessions could assist in meeting the patient halfway. Patient-centred approaches in NIMART provision can also yield better outcomes for treatment access to farmworkers, and those living far from the healthcare facilities in Dr RSM district.

On patient education, it was recommended that literacy levels of communities should be considered. This could even involve the tribal authorities to assist in creating HIV awareness in their villages. In rural communities with such gender and age stereotypes, it was proposed that tribal authorities be engaged for them to guide the youth in the fight against HIV/AIDS and stereotypes emanating from ART consumption. This then would prevent LTFU of newly initiated patients as a study in rural KZN had proved (Arnesen et al., 2017a). Patient education alongside service integration were thus recommended as factors that can positively influence NIMART implementation (Kalonji and Mahomed, 2019).

4.7 Study limitations

The study was limited in scope as it was intended to fulfil the requirements of an academic programme at Master's level. A wider study could be required to infer results at a broader level in the district or even the whole country. Although the scope was limited, conducting a qualitative study in this manner is acceptable. Moreover, the limited nature of the study only focussed on qualitative data from NIMART implementers such as the nurses. It would have been good to interview other key informants such as community representatives, senior managers, and patients to have a balanced view of the narratives. In addition, the subdistricts and facilities were purposely selected, which could then lead to researcher bias. Likewise, the researcher had an insider role as she worked under a DSP some years ago, therefore she was known by most participants. This then might have affected the respondents as they assumed that she knew exactly what they were talking about. However, the researcher continually applied reflexivity to avoid bias, and this way, participants were liberated to speak from their own experiences.

SUMMARY

This chapter discussed the study findings on the nurses' perceptions on the NIMART programme; their experiences of those factors that facilitating and inhibiting the implementation of NIMART, and their recommendations for quality improvement of NIMART. The study confirmed that rural contextual factors such as long-distance travel and high transportation costs; high staff turnover and societal and cultural norms were seen as barriers to service access and retention among ART patients. The study also found that farmworkers had limited access to healthcare and highlighted the importance of good nurse-patient relationships. The barriers to NIMART implementation were further mainly categorised under health-system based- HRH challenges; service integration; capacity building, training, and mentoring; ART unavailability and delays; insufficient management and health service support systems, and nurses being demotivated due to HRH challenges. It was however, found out that resilience on the nurse's part, in the face of these barriers, was mainly due to nurses' intrinsic motivation to serve humanity and seeing positive outcomes in these patients. Patient compliance to ART was also found to be influenced by ART non-availability, illiteracy, stigma, social norms, cultural beliefs, and political governance systems which made it difficult for certain sections of society to reveal their status and become open to ART. The nurses in this study showed that they were able to work with what was available within their reach. These included daily clinical management of patient as well as sustaining the operations of the facilities. The nurses also recommended that health systems' issues, which directly impact on their work, should be addressed. These included healthcare support systems such as patient transport, accessible laboratory services, transportation, and logistics; nurse capacity building and training and general management support and service recognition.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This study aim was to explore the perceptions and experiences of nurses in implementing NIMART programme in the Dr RSM district. Chapter five provides the conclusion, recommendations, limitations, and areas for further research.

5.2 CONCLUSIONS

Decentralisation of ART services is beneficial for the communities in Dr RSM district. The district is large, rural, and sparsely populated resulting in patients travelling long distances to reach the nearest healthcare facility. In so far, the NIMART programme has made great strides to bring healthcare services closer to the people in the rural and hard to reach areas. However, Dr RSM district, has unique contextual challenges that hamper access. The district is largely agricultural, such that HIV positive people working in farms often default treatment due to lack of cooperation by farm owners to let their employees attend clinic appointments. Patient adherence is affected by access challenges, gender inequality, social norms, and cultural beliefs, but also socio-political factors at times. Health system challenges such as drug non-availability, poor service integration; inadequate health service support systems, and lack of management support inhibit NIMART implementation.

Nurses are affected by the day-to-day operations at facility level. Health system inhibitors such as service integration, and lack of resources had increased workload among nurses while demoralising them. Coping mechanisms on the nurses' part has been recorded to include patient cooperation, teamwork, and peer support within the ailing health system. Management support, transparency and resource availability would also ease workload and boost the morale of nurses. Interestingly, the principles of Ubuntu and nursing ethics have often kept nurses motivated regardless of the challenges they face. They however decried inadequate management support to address nurses' mental health issues, burnout, and non-recognition for good service. While there are many HRH challenges to be addressed as mentioned by the nurses, there is still room for public policy improvement in this rural context and many opportunities lie ahead.

Finally, there is an opportunity of building on factors that improve nurses' experiences in NIMART implementation. Better nurse experiences in rural districts can be successful if actions that consider

the rural context are implemented at policy formulation, implementation, collaboration, and accountability in oversight. Regardless of the challenges they faced, the nurses proved that resilience, and the call to serve humanity are central to healthcare provision.

5.3 RECOMMENDATIONS

The participants' recommendations were concrete and had more to do with what was in their control at the facility level. Useful as they were, small changes at facility level could be made and contribute to the overall NIMART experience. However, these recommendations were not sufficient to address the kind of rural contextual factors and inhibitors to NIMART implementation which they faced. Considering Universal Health Coverage (UHC) by 2030, and the efforts required to reach the goal, the researcher is drawing from RHAP's rural proofing for health guidelines and the WHO Health Systems Building Blocks to inform recommendations (Rural Health Advocacy Project, 2015, World Health Organization, 2017). Below is the goal to eliminate inhibitors of NIMART implementation with three key objectives to address the gaps. The researcher is therefore submitting the following actionable high-level recommendations in a tabulated form:

Goal: To eliminate the inhibitors of NIMART implementation in Dr RSM district by 2030

5.3.1 Objective 1: To consider the rural context (rural proof) in all health policy formulation

Gap	Intervention	Responsible person	Timeline
Rural friendly health policies	Formulate rural friendly health policies. Critically think of the potential impact the policy or programme may have in a rural context, and ensure the policy upholds human rights of access to healthcare services: 1. Define the health need and conduct a situational analysis. 2. Have a clear purpose of the policy or programme. 3. Apply the "rural lens" using a set criterion in reviewing the policy for feasibility. 4. Draw up actions that "fit rural" too.	National Department of Health North West Department of Health District Management Team	By 2025

	5. Monitor and evaluate policy implementation and outcomes in rural areas to measure "fit", adopt or adjust where needed. Refine and standardise policies and programmes to suit individual healthcare facilities and mobile clinics		

5.3.2 Objective 2: To reorient health services using the WHO Health Systems Building Blocks Framework: Service Delivery, Health Workforce, Health information systems, Access to essential medicines, Financing, Leadership/ Governance

Gap	Intervention	Responsible person	Timeline
Service Delivery	• Improve mobile clinic access to farm environment through a Standard Operating Procedure (SOP) that binds all government sectors and stakeholders to effect. • Mobilise sectors of government such as Agriculture, Labour, and Transport, including Traditional leaders, healers, and Civil Society to address physical access to healthcare services for farmworkers, cross border patients and those living in remote villages • Scale up access to Pre-Exposure Prophylaxis (PrEP) for all rural women who are not HIV infected. • Develop and standardise Intimate Partner Violence (IPV) and Gender Based Violence (GBV) screening tool and include during health screening for women	National Department of Health North West Department of Health District Management Team Government Sectors	2025

Health workforce (nurses)	• Tailor NIMART training and mentoring for students at colleges, universities and prior to the commencement of community service • Formulate the nursing community service policy with stakeholders and civil society inputs which will address a clear scope, funding, mentoring and support, as well as career pathing for young nurses keen to specialise in specific fields • Fastrack, monitor and evaluate the SANC CPD point system implementation to scale up skills development and nurse retention for rural • Create, standardise, and implement an effective debriefing programme for nurses to create a supportive environment. • Celebrate, award and reward nurses	National Department of Health	2025
Health information systems	• Avail health information management systems resources: data capturers, functional computers, ART clinical stationery, cartridges etc.	National Department of Health North West Department of Health District Management Teams	2025
Medical Products, Vaccines, and technologies	• Actively promote Central Chronic Medicines Dispensing and Distribution (CCMDD) for easy access of treatment to patients in their communities	North West Department of Health	2025

	• Review contracts of laboratory specimen transportation to promote access to laboratory services • Decentralise laboratories to CHCs	District Management Teams National Department of Health	
Financing	• Ring-fence funds towards actions that attract and retain nurses in rural areas such as, OSD, Rural Allowance and better accommodation. • Avail funds for health service support systems such as support staff and resources such as data capturers, and ART clinical stationery	National Department of Health Treasury Civil Society	2025
Leadership/ Governance	• Foster stewardship and accountability by employing and monitoring transparency in procurement and supply chain processes • Train facility and programme managers in health-service management to be pro-active and able to manage moments of crisis, such as moratoriums and drug shortages. • Support and reward nurses	National Department of Health	2025

5.3.3 Objective 3: To strengthen the community and health service user engagement in health service planning

Gap	Intervention	Responsible person	Timeline
Patient treatment adherence	• Initiate multisectoral community health forums with individuals, households, community gatekeepers, and the broader community to eradicate the HIV stigma, social and cultural norms that affect treatment adherence.	District Management Teams Government Sectors Traditional leaders	2025

		Ward Councillors Civil Society	
Socio cultural norms	• Scale up and monitor the DoH *Mina Campaign* to render services targeted at men to foster accountability on men for their health, and that of their families while away for work.	DMTs Government Sectors Ward Councillors Civil Society Traditional leaders	2025

5.3.4 Objective 4: To harness the voice of nurses to advocate for NIMART and PHC services in rural areas

Gap	**Intervention**	**Responsible person**	**Timeline**
Advocacy for nurses and patients	• Train nurses in advocacy for rural healthcare within the legislation	SANC District Management Teams Civil Society	2025
Understanding of Public Health basics	• Introduce the basics of Public Health at pre-service nurse training levels to promote the understanding of the social and structural determinants of health	Nursing Schools SANC	2025

5.4 IMPLICATIONS FOR FUTURE RESEARCH

- There is need for future studies involving health service users, and managers at district level to explore their experiences and perceptions about NIMART.
- The inclusion of health-service users will reveal their own rich experiences and strengthen the views of nurses about patient-related challenges, and those factors that facilitate NIMART implementation.

- Further studies are needed among farm labourers and farmers on health service access, and its implications.
- Further studies should also try to find out socio-economic implications of the by-laws on the rural poor communities.
- Mobile clinic services need to be researched on for their impact on farm labourers and other hard to reach communities.
- For such a study, in such a large district, there is a need for longitudinal research utilising other research design while targeting a much larger population.

REFERENCES

ADENIYI, O. V., AJAYI, A. I., SELANTO-CHAIRMAN, N., GOON, D. T., BOON, G., FUENTES, Y. O., HOFMEYR, G. J., AVRAMOVIC, G., CARTY, C., LAMBERT, J. & EAST LONDON PROSPECTIVE COHORT STUDY, G. 2017. Demographic, clinical and behavioural determinants of HIV serostatus non-disclosure to sex partners among HIV-infected pregnant women in the Eastern Cape, South Africa. *PloS one,* 12**,** e0181730-e0181730.

ARNESEN, R., MOLL, A. P. & SHENOI, S. V. 2017a. Predictors of loss to follow-up among patients on ART at a rural hospital in KwaZulu-Natal, South Africa. *PLoS One,* 12**,** e0177168.

ARNESEN, R., MOLL, A. P. & SHENOI, S. V. 2017b. Predictors of loss to follow-up among patients on ART at a rural hospital in KwaZulu-Natal, South Africa. *PloS one,* 12**,** e0177168-e0177168.

ARYAL, N., REGMI, P., TEIJLINGEN, E., DHUNGEL, D., GHALE, G. & BHATTA, G. 2016. Knowing is not enough: Migrant workers' spouses vulnerability to HIV. *SAARC Journal of Tuberculosis, Lung Diseases and HIV/AIDS,* 13**,** 9-15.

BANGSBERG, D. R., ACOSTA, E. P., GUPTA, R., GUZMAN, D., RILEY, E. D., HARRIGAN, P. R., PARKIN, N. & DEEKS, S. G. 2006. Adherence-resistance relationships for protease and non-nucleoside reverse transcriptase inhibitors explained by virological fitness. *Aids,* 20**,** 223-31.

BATEMAN, C. 2013. Drug stock-outs: inept supply-chain management and corruption. *South African Medical Journal,* 103**,** 600-2.

BEDELU, M., FORD, N., HILDERBRAND, K. & REUTER, H. 2007. Implementing antiretroviral therapy in rural communities: the Lusikisiki model of decentralized HIV/AIDS care. *The Journal of infectious diseases,* 196**,** S464-S468.

BLAAUW, D., ERASMUS, E., PAGAIYA, N., TANGCHAROENSATHEIN, V., MULLEI, K., MUDHUNE, S., GOODMAN, C., ENGLISH, M. & LAGARDE, M. 2010. Policy interventions that attract nurses to rural areas: a multicountry discrete choice experiment. *Bulletin of the World Health Organization,* 88**,** 350-356.

BYGRAVE, H., KRANZER, K., HILDERBRAND, K., WHITTALL, J., JOUQUET, G., GOEMAERE, E., VLAHAKIS, N., TRIVIÑO, L., MAKAKOLE, L. & FORD, N. 2010. Trends in loss to follow-up among migrant workers on antiretroviral therapy in a community cohort in Lesotho. *PloS one,* 5**,** e13198.

CALLAGHAN, M., FORD, N. & SCHNEIDER, H. 2010. A systematic review of task- shifting for HIV treatment and care in Africa. *Human resources for health,* 8**,** 8-8.

CAMERON, D., GERBER, A., MBATHA, M., MUTYABULE, J. & SWART, H. 2012a. Nurse-initiation and maintenance of patients on antiretroviral therapy: are nurses in primary care clinics initiating ART after attending NIMART training? *S Afr Med J,* 102**,** 98-100.

CAMERON, D., GERBER, A., MBATHA, M., MUTYABULE, J. & SWART, H. 2012b. Nurse initiation and maintenance of patients on antiretroviral therapy: Are nurses in primary care clinics initiating ART after attending NIMART training? *SAMJ: South African Medical Journal,* 102**,** 98-100.

CLARK, S. J., COLLINSON, M. A., KAHN, K., DRULLINGER, K. & TOLLMAN, S. M. 2007. Returning home to die: circular labour migration and mortality in South Africa. *Scand J Public Health Suppl,* 69**,** 35-44.

CLEARY, S. M., BIRCH, S., MOSHABELA, M. & SCHNEIDER, H. 2012. Unequal access to ART: exploratory results from rural and urban case studies of ART use. *Sexually transmitted infections* 88**,** 141-6.

CLEARY, S. M., MOLYNEUX, S. & GILSON, L. 2013. Resources, attitudes and culture: an understanding of the factors that influence the functioning of accountability mechanisms in primary health care settings. *BMC health services research,* 13**,** 320.
COLLINSON, M., WOLFF, B., TOLLMAN, S. & KAHN, K. 2006. Trends in internal labour migration from the rural Limpopo Province, male risk behaviour, and implications for spread of HIV/AIDS in rural South Africa. *Journal of ethnic and migration studies* 32**,** 633-648.

COLLINSON, M. A., CLARK, S. J., GERRITSEN, A. M., BYASS, P., KAHN, K. & TOLLMAN, S. 2009. The dynamics of poverty and migration in a rural South African community, 2001-2005.
COOKE, R., COUPER, I. & VERSTEEG, M. 2011. Human resources for rural health. *South African Health Review,* 2011**,** 107-117.
COUNCIL, P. H. A. W. S. B. 2004. Revised non-pensionable recruitment allowance, known as " the Rural Allowance": Public Health secor professionals working in hospitals/institutions as managed by by the health employer in: ISRDS nodes; and rural areas. *In:* HEALTH (ed.).
COUPER, I. D. 2003. Rural hospital focus: defining rural. *Rural Remote Health,* 3**,** 205.
CRESSWELL, J. W. 2007. *Qualitative Inquiry and Research Design Choosing Among Five Approaches,* Los Angeles, London, New Delhi, Singapore, Washinton DC, SAGE.
CRESSWELL, J. W. 2013. *Qualitative Inquiry and Research Design Choosing Among Five Approaches,* Los Angeles, London, New Delhi, Singapore, Washington DC, SAGE.
CROWLEY, T. & MAYERS, P. 2015. Trends in task shifting in HIV treatment in Africa: Effectiveness, challenges and acceptability to the health professions. *African Journal of Primary Health Care & Family Medicine,* 7**,** 1-9.
DAVIES, N. E., HOMFRAY, M. & VENABLES, E. C. 2013. Nurse and manager perceptions of nurse initiated and managed antiretroviral therapy (NIMART) implementation in South Africa: a qualitative study. *BMJ Open,* 3**,** e003840.
DELOBELLE, P., RAWLINSON, J. L., NTULI, S., MALATSI, I., DECOCK, R. & DEPOORTER, A. M. 2009. HIV/AIDS knowledge, attitudes, practices and perceptions of rural nurses in South Africa. *Journal of advanced nursing* 65**,** 1061-73.

DELOBELLE, P., RAWLINSON, J. L., NTULI, S., MALATSI, I., DECOCK, R. & DEPOORTER, A. M. 2011. Job satisfaction and turnover intent of primary healthcare nurses in rural South Africa: a questionnaire survey. *Journal of advanced nursing,* 67**,** 371-383.
DITLOPO, P., BLAAUW, D., BIDWELL, P. & THOMAS, S. 2011a. Analyzing the implementation of the rural allowance in hospitals in North West Province, South Africa. *Journal of public health policy,* 32**,** S80-S93.
DITLOPO, P., BLAAUW, D., BIDWELL, P. & THOMAS, S. 2011b. Analyzing the Implementation of the Rural Allowance in Hospitals in North West Province, South Africa. *Journal of public health policy,* 32 Suppl 1**,** S80-93.
DITLOPO, P., BLAAUW, D., RISPEL, L., THOMAS, S. & BIDWELL, P. 2013. Policy implementation and financial incentives for nurses in South Africa: a case study on the occupation-specific dispensation. *Global health action,* 6**,** 19289.
DOH 2003. National Health Act no 61 Republic of South Africa.
DRAIN, P. K., DORWARD, J., BENDER, A., LILLIS, L., MARINUCCI, F., SACKS, J., BERSHTEYN, A., BOYLE, D. S., POSNER, J. D. & GARRETT, N. 2019. Point-of-Care HIV Viral Load Testing: an Essential Tool for a Sustainable Global HIV/AIDS Response. *Clinical microbiology reviews* 32.

DUGANI, S., AFARI, H., HIRSCHHORN, L. R., RATCLIFFE, H., VEILLARD, J., MARTIN, G., LAGOMARSINO, G., BASU, L. & BITTON, A. 2018. Prevalence and factors associated

with burnout among frontline primary health care providers in low- and middle-income countries: A systematic review. *Gates open research,* 2**,** 4-4.
DZOMBA, A., TOMITA, A., GOVENDER, K. & TANSER, F. 2019. Effects of migration on risky sexual behavior and HIV acquisition in South Africa: A systematic review and meta-analysis, 2000–2017. *AIDS and Behavior,* 23**,** 1396-1430.
EAGAR, D., COOKE R, LEVIN J & WOMARANS M 2014. Developing an approach to accounting for need in resource allocation between urban and rural district hospitals in South Africa. *South African Health Review,* 15**,** 101-114.
EGBUJIE, B. A., GRIMWOOD, A., MOTHIBI-WABAFOR, E. C., FATTI, G., TSHABALALA, A., ALLIE, S., VILAKAZI, G. & OYEBANJI, O. 2018. Impact of 'Ideal Clinic' implementation on patient waiting time in primary healthcare clinics in KwaZulu-Natal Province, South Africa: A before-and-after evaluation. *South African medical journal = Suid-Afrikaanse tydskrif vir geneeskunde* 108**,** 311-318.

EHRLICH, R. & JOUBERT, G. 2014. *Epidemiology: a research manual for South Africa,* Oxford University Press Southern Africa (Pty) Limited.
EILERS, G. M. 2004. Improving patient satisfaction with waiting time. *Journal of American college health : J of ACH* 53**,** 41-3.

EL-KHATIB, Z. & RICHTER, M. 2009. (ARV-) Free State? The moratorium's threat to patients' adherence and the development of drug-resistant HIV. *SAMJ: South African Medical Journal,* 99**,** 412-414.
ENGEL, N., DAVIDS, M., BLANKVOORT, N., PAI, N. P., DHEDA, K. & PAI, M. 2015. Compounding diagnostic delays: a qualitative study of point-of-care testing in South Africa. *Tropical medicine & international health,* 20**,** 493-500.
EYLES, J., HARRIS, B., FRIED, J., GOVENDER, V. & MUNYEWENDE, P. 2015. Endurance, resistance and resilience in the South African health care system: case studies to demonstrate mechanisms of coping within a constrained system. *BMC health services research,* 15**,** 432-432.
FATTI, G., BOCK, P., GRIMWOOD, A. & ELEY, B. 2010. Increased vulnerability of rural children on antiretroviral therapy attending public health facilities in South Africa: a retrospective cohort study. *J Int AIDS Soc,* 13**,** 46.
FONJUNGO, P. N., OSMANOV, S., KURITSKY, J., NDIHOKUBWAYO, J. B., BACHANAS, P., PEELING, R. W., TIMPERI, R., FINE, G., STEVENS, W., HABIYAMBERE, V. & NKENGASONG, J. N. 2016. Ensuring quality: a key consideration in scaling-up HIV-related point-of-care testing programs. *AIDS,* 30**,** 1317-1323.
G, J. & EHRLICH, R. 2007. *Epidemiology A Research Manual for South Africa,* South Africa, Oxford University Press.
GAEDE, B. & VERSTEEG, M. 2011. The state of the right to health in rural South Africa. *South African Health Review 2011***,** 99.
GEORGE, G., ATUJUNA, M., GENTILE, J., QUINLAN, T., SCHMIDT, E., TOBI, P. & RENTON, A. 2010. The impact of ART scale upon health workers: evidence from two South African districts. *AIDS care,* 22**,** 77-84.
GEORGE, G., ATUJUNA, M. & GOW, J. 2013. Migration of South African health workers: the extent to which financial considerations influence internal flows and external movements. *BMC Health Services Research,* 13**,** 297.
GEORGEU, D., COLVIN, C. J., LEWIN, S., FAIRALL, L., BACHMANN, M. O., UEBEL, K., ZWARENSTEIN, M., DRAPER, B. & BATEMAN, E. D. 2012. Implementing nurse-initiated and managed antiretroviral treatment (NIMART) in South Africa: a qualitative process evaluation of the STRETCH trial. *Implementation Science,* 7**,** 66.

GILSON, L., BARASA, E., NXUMALO, N., CLEARY, S., GOUDGE, J., MOLYNEUX, S., TSOFA, B. & LEHMANN, U. 2017. Everyday resilience in district health systems: emerging insights from the front lines in Kenya and South Africa. *BMJ Global Health,* 2**,** e000224.
GOUDGE, J., GILSON, L., RUSSELL, S., GUMEDE, T. & MILLS, A. 2009. Affordability, availability and acceptability barriers to health care for the chronically ill: longitudinal case studies from South Africa. *BMC health services research,* 9**,** 75.
GOVERNMENT, S. 2017. *The National Government Handbook – South Africa* [Online]. Yes Media. Available: http://www.localgovernment.co.za/districts/view/42/Ngaka-Modiri-Molema-District-Municipality [Accessed 25 March 2017].
GREEN, A., DE AZEVEDO, V., PATTEN, G., DAVIES, M.-A., IBETO, M. & COX, V. 2014. Clinical Mentorship of Nurse Initiated Antiretroviral Therapy in Khayelitsha, South Africa: A Quality of Care Assessment. *PLOS ONE,* 9**,** e98389.
GRUCHY, T. D. & VEAREY, J. 2020. "Left behind": why implementing migration-aware responses to HIV for migrant farm workers is a priority for South Africa. *African Journal of AIDS Research,* 19**,** 57-68.
GUBA, E. G. 1981. Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Technology Research and Development,* 29**,** 75-91.
HALCOMB, E., SMYTH, E. & MCINNES, S. 2018. Job satisfaction and career intentions of registered nurses in primary health care: an integrative review. *BMC family practice,* 19**,** 136-136.
HARRIS, B., GOUDGE, J., ATAGUBA, E. J., MCINTYRE, D., NXUMALO, N., JIKWANA, S. & CHERSICH, M. 2011a. Inequities in access to health care in South Africa. *Journal of Public Health Policy,* 32**,** S102-S123.
HARRIS, B., GOUDGE, J., ATAGUBA, J. E., MCINTYRE, D., NXUMALO, N., JIKWANA, S. & CHERSICH, M. 2011b. Inequities in access to health care in South Africa. *Journal of public health policy,* 32**,** S102-S123.
HARRISON, D. 2009. An overview of health and health care in South Africa 1994–2010: Priorities, progress and prospects for new gains. *Washington, DC: Henry J Kaiser Family Foundation*.
HART, L. G., LARSON, E. H. & LISHNER, D. M. 2005. Rural definitions for health policy and research. *American journal of public health* 95**,** 1149-55.
HEALTH SYSTEMS TRUST. 2016. *District Health Barometer 2014/15* [Online]. Available: http://www.hst.org.za/sites/default/files/North_West.pdf [Accessed 13 August 2016].
HELEN SCHNEIDER (UCT), D. M. H., STEPHEN BIRCH (MIEH/CHEPA), JOHN EYLES (MIEH/CHEPA) & 2009. REACH Researching Equity in Access to Health Care Project: PHASE 1 RESULTS Access challenges in TB, ART and maternal health services
HENNINK, M., HUTTER, I. & BAILEY, A. 2011a. *Qualitative Research Methods,* Los Angeles, London, New Delhi, Singapore, Washington DC, SAGE.
HENNINK, M., HUTTER, I. & BAILEY, A. 2011b. *Qualitative Research Methods,* Los Angeles, London, New Delhi, Singapore, Washington DC, SAGE.
HODES, R. & GRIMSRUD, A. 2011. The antiretroviral moratorium in the Free State Province of South Africa: Contributing factors and implications.
HODES, R., PRICE, I., BUNGANE, N., TOSKA, E. & CLUVER, L. 2017. How front-line healthcare workers respond to stock-outs of essential medicines in the Eastern Cape Province of South Africa. *South African Medical Journal,* 107**,** 738-740.
HWANG, B., SHROUFI, A., GILS, T., STEELE, S. J., GRIMSRUD, A., BOULLE, A., YAWA, A., STEVENSON, S., JANKELOWITZ, L., VERSTEEG-MOJANAGA, M., GOVENDER, I., STEPHENS, J., HILL, J., DUNCAN, K. & VAN CUTSEM, G. 2019. Stock-outs of antiretroviral and tuberculosis medicines in South Africa: A national cross-sectional survey. *PLoS One,* 14**,** e0212405.

IWU, E. N. & HOLZEMER, W. L. 2014. HIV Task Shifting from Physicians to Nurses in Nigeria: Examining the Correlates of Nurse Self-Efficacy and Job Satisfaction.

JOBSON, G., MABITSI, M., RAILTON, J., GROBBELAAR, C. J., MCINTYRE, J. A., STRUTHERS, H. E. & PETERS, R. P. H. 2019. Targeted mentoring for human immunodeficiency virus programme support in South Africa. *Southern African journal of HIV medicine,* 20**,** 873-873.

JOBSON, G. A., GROBBELAAR, C. J., MABITSI, M., RAILTON, J., PETERS, R. P. H., MCINTYRE, J. A. & STRUTHERS, H. E. 2017. Delivering HIV services in partnership: factors affecting collaborative working in a South African HIV programme. *Globalization and Health,* 13**,** 3.

JOHNSON, L. F., MAY, M. T., DORRINGTON, R. E., CORNELL, M., BOULLE, A., EGGER, M. & DAVIES, M.-A. 2017. Estimating the impact of antiretroviral treatment on adult mortality trends in South Africa: A mathematical modelling study. *PLoS medicine,* 14**,** e1002468.

JONES, M. & CAMERON, D. 2017. Evaluating 5 years' NIMART mentoring in South Africa's HIV treatment programme: Successes, challenges and future needs. *South African medical journal = Suid-Afrikaanse tydskrif vir geneeskunde* 107**,** 839-842.

KALONJI, D. & MAHOMED, O. H. 2019. Health system challenges affecting HIV and tuberculosis integration at primary healthcare clinics in Durban, South Africa. *African Journal of Primary Health Care and Family Medicine,* 11**,** 1-7.

KLAAS, N. E., THUPAYAGALE-TSHWENEAGAE, G. & MAKUA, T. P. 2018. The role of gender in the spread of HIV and AIDS among farmworkers in South Africa. *African journal of primary health care & family medicine* 10**,** e1-e8.

KREFTING, L. 1991. Rigor in qualitative research: The assessment of trustworthiness. *American journal of occupational therapy,* 45**,** 214-222.

LOELIGER, K. B., NICCOLAI, L. M., MTUNGWA, L. N., MOLL, A. & SHENOI, S. V. 2016. Antiretroviral therapy initiation and adherence in rural South Africa: community health workers' perspectives on barriers and facilitators. *AIDS Care,* 28**,** 982-993.

LONG, L. C., ROSEN, S. B., BRENNAN, A., MOYO, F., SAULS, C., EVANS, D., MODI, S. L., SANNE, I. & FOX, M. P. 2016. Treatment Outcomes and Costs of Providing Antiretroviral Therapy at a Primary Health Clinic versus a Hospital-Based HIV Clinic in South Africa. *PloS one,* 11**,** e0168118.

MABELANE, T., MARINCOWITZ, G. J. O., OGUNBANJO, G. A. & GOVENDER, I. 2016. Factors affecting the implementation of nurse-initiated antiretroviral treatment in primary health care clinics of Limpopo Province, South Africa. *South African Family Practice,* 58**,** 9-12.

MADIBA, S. & NGWENYA, N. 2017. Cultural practices, gender inequality and inconsistent condom use increase vulnerability to HIV infection: narratives from married and cohabiting women in rural communities in Mpumalanga province, South Africa. *Global health action,* 10**,** 1341597.

MAKHADO, L. & DAVHANA-MASELESELE, M. 2016. Knowledge and psychosocial wellbeing of nurses caring for people living with HIV/AIDS (PLWH). *Health SA Gesondheid,* 21**,** 1-10.

MAKHADO, L., DAVHANA-MASELESELE, M. & FARLEY, J. E. 2018. Barriers to tuberculosis and human immunodeficiency virus treatment guidelines adherence among nurses initiating and managing anti-retroviral therapy in KwaZulu-Natal and North West provinces. *Curationis,* 41**,** e1-e8.

MAKHADO, L., DAVHANA-MASELESELE, M., LEBESE, R. T. & MAPUTLE, S. M. 2020. Factors facilitating trained NIMART nurses' adherence to treatment guidelines: a vital matter in the management of TB/HIV treatment in South Africa. *BMC Nursing,* 19**,** 77.

MASSYN N, PEER N, ENGLISH R, PADARATH A, BARRON P & DAY C 2015/16. District Health Barometer 2015/16. Durban: Health Systems Trust.

MASSYN, N., PEER, N., ENGLISH, R., PADARATH, A., BARRON, P. & DAY, C., EDITORS 2016. District health barometer 2015/16. *Durban: Health systems trust*.

MATHIBE, M. D., HENDRICKS, S. J. & BERGH, A.-M. 2015. Clinician perceptions and patient experiences of antiretroviral treatment integration in primary health care clinics, Tshwane, South Africa. *curationis,* 38**,** 1-11.

MBOERA, L. E., ISHENGOMA, D. S., KILALE, A. M., MASSAWE, I. S., RUTTA, A. S., KAGARUKI, G. B., KAMUGISHA, E., BARAKA, V., MANDARA, C. I. & MATERU, G. S. 2015. The readiness of the national health laboratory system in supporting care and treatment of HIV/AIDS in Tanzania. *BMC health services research,* 15**,** 248.

MBOWENI, S. H. & MAKHADO, L. 2019. Impact of NIMART training on HIV management in Ngaka Modiri Molema District, North WEST province. *International Journal of Africa Nursing Sciences,* 11**,** 100170.

MBOWENI, S. H. & MAKHADO, L. 2020. Conceptual framework for strengthening nurse-initiated management of antiretroviral therapy training and implementation in North West province. *Health SA,* 25**,** 1285.

MCINTYRE, D. & THIEDE, M. 2007. Health care financing and expenditure: pooling of resources and purchasing of health care. *South African health review,* 2007**,** 35-46.

MCINTYRE, D., THIEDE, M. & BIRCH, S. 2009. Access as a policy-relevant concept in low-and middle-income countries. *Health Economics, Policy and Law,* 4**,** 179-193.

MOJAKI, M., BASU, D., LETSKOKGOHKA, M. & GOVENDER, M. 2011. Referral steps in district health system are side-stepped. *SAMJ: South African Medical Journal,* 101**,** 109-109.

MORI, A. T. & OWENYA, J. 2014. Stock-outs of antiretroviral drugs and coping strategies used to prevent changes in treatment regimens in Kinondoni District, Tanzania: a cross-sectional study. *Journal of pharmaceutical policy and practice,* 7**,** 3.

MOSHABELA, M., BUKENYA, D., DARONG, G., WAMOYI, J., MCLEAN, E., SKOVDAL, M., DDAAKI, W., ONDENG'E, K., BONNINGTON, O. & SEELEY, J. 2017. Traditional healers, faith healers and medical practitioners: the contribution of medical pluralism to bottlenecks along the cascade of care for HIV/AIDS in Eastern and Southern Africa. *Sexually Transmitted Infections,* 93.

MOSHABELA, M., SCHNEIDER, H., SILAL, S. P. & CLEARY, S. M. 2012. Factors associated with patterns of plural healthcare utilization among patients taking antiretroviral therapy in rural and urban South Africa: a cross-sectional study. *BMC health services research,* 12**,** 182.

MOSHABELA, M., ZUMA, T. & GAEDE, B. 2016. Bridging the gap between biomedical and traditional health practitioners in South Africa. *South African Health Review***,** 83-92.

MOTLOKOA, M. N. 2016. *Factors influencing submission of portfolios of evidence amongst nurses trained in nurse initiation and management of antiretroviral therapy in North West.*

MUNYEWENDE, P. O., RISPEL, L. C. & CHIRWA, T. 2014. Positive practice environments influence job satisfaction of primary health care clinic nursing managers in two South African provinces. *Human resources for health,* 12**,** 27-27.

MUULA, A. 2007. How do we define 'rurality' in the teaching on medical demography? *Rural and remote health,* 7**,** 653.

NAIDOO, S., ROSS, M. H. & DHAI, A. 2007. Ethics in occupational health research in South Africa. *Occupational Health Southern Africa*.

NDOH. 2010a. *CLINICAL GUIDELINES FOR THE MANAGEMENT OF HIV & AIDS IN ADULTS AND ADOLESCENTS* [Online]. Available:

http://www.sahivsoc.org/Files/Clinical_Guidelines_for_the_Management_of_HIV_AIDS_in_Adults_Adolescents_2010.pdf [Accessed 5 March 2017].
NDOH 2010b. Clinical guidelines for the primary care management of adults; HIV/AIDS, TB, Asthma/COPD, STIs. Pretoria: Department of Health.
NDOH 2010c. Remuneration Policy for Health Professionals Employed in the Public Health Sector Pretoria:

NDOH 2011a. Clinical Mentorship Manual for Intergrated Services. Pretoria.
NDOH. 2011b. *Reengineering of PHC* [Online]. Available: https://ndoh.dhmis.org/owncloud/index.php/s/R5cmdp0gY4Fa43Z?path=%2FReengineering%20of%20PHC [Accessed 12 June 2017].
NDOH. 2013. *National Health Insurance* [Online]. Available: https://ndoh.dhmis.org/owncloud/index.php/s/R5cmdp0gY4Fa43Z?path=%2FNHI [Accessed 12 June 2017].
NDOH 2015a. NATIONAL CONSOLIDATED GUIDELINES FOR THE PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV (PMTCT) AND THE MANAGEMENT OF HIV IN CHILDREN, ADOLESCENTS AND ADULTS.
NDOH 2015b. Primary Care 101: Clinical guidelines for the primary care management of adults; HIV/AIDS, TB, Asthma/COPD, Cardiovascular disease, Diabetes, Mental health conditions, Epilepsy, Musculoskeletal disorders,Women's health. Pretoria: Department of Health.
NDOH 2016. IMPLEMENTATION OF THE UNIVERSAL TEST AND TREAT STRATEGY FOR

HIV POSITIVE PATIENTS AND DIFFERENTIATED CARE FOR STABLE PATIENTS. South Africa.
NDOH 2018. Ideal Clinic Manual Version 18.
NICHOLSON, J., ENGLEBRECHT, B., MCCOY, D., NTULI, A., LUSTED, I., NICHOLSON, J. & GROVE, S. This publication was supported with a grants from the Henry J. Kaiser Family Foundation (USA) and the Rockefeller Foundation.
NKENGASONG, J. N. 2009. Strengthening laboratory services and systems in resource-poor countries. *American journal of clinical pathology,* 131**,** 774-774.
NXUMALO, N., ALABA, O., HARRIS, B., CHERSICH, M. & GOUDGE, J. 2011. Utilization of traditional healers in South Africa and costs to patients: findings from a national household survey. *Journal of public health policy,* 32**,** S124-S136.
NYASULU, J. C. Y., MUCHIRI, E., MAZWI, S. L. & RATSHEFOLA, M. 2012. *NIMART rollout to primary healthcare facilities increases access to antiretrovirals in Johannesburg: An interrupted time series analysis*.
NYIKURI, M., TSOFA, B., BARASA, E., OKOTH, P. & MOLYNEUX, S. 2015. Crises and resilience at the frontline—public health facility managers under devolution in a Sub-County on the Kenyan Coast. *PloS one,* 10.
OJAKAA, D., OLANGO, S. & JARVIS, J. 2014. Factors affecting motivation and retention of primary health care workers in three disparate regions in Kenya. *Human resources for health,* 12**,** 1-13.
ORGANIZATION, W. H. 2006. *WHO recommendations for clinical mentoring to support scale-up of HIV care, antiretroviral therapy and prevention in resource-constrained settings*, World Health Organization.
PATINO, C. M. & FERREIRA, J. C. 2018. Inclusion and exclusion criteria in research studies: definitions and why they matter. *Jornal Brasileiro de Pneumologia,* 44**,** 84-84.
PELTZER, K., FRIEND-DU PREEZ, N., RAMLAGAN, S. & FOMUNDAM, H. 2008. Use of traditional complementary and alternative medicine for HIV patients in KwaZulu-Natal, South Africa. *BMC Public Health,* 8**,** 1.

PHAM, M. D., ROMERO, L., PARNELL, B., ANDERSON, D. A., CROWE, S. M. & LUCHTERS, S. 2017. Feasibility of antiretroviral treatment monitoring in the era of decentralized HIV care: a systematic review. *AIDS Res Ther,* 14**,** 3.
PILLAY, R. 2009. Work satisfaction of professional nurses in South Africa: a comparative analysis of the public and private sectors. *Human resources for health,* 7**,** 15-15.
PLAZY, M., PERRIAT, D., GUMEDE, D., BOYER, S., PILLAY, D., DABIS, F., SEELEY, J. & ORNE-GLIEMANN, J. 2017. Implementing universal HIV treatment in a high HIV prevalence and rural South African setting - Field experiences and recommendations of health care providers. *PLoS One,* 12**,** e0186883.
RURAL HEALTH ADVOCACY PROJECT. 2014. *Defining rurality within the context of health policy, planning, resourcing and service delivery: Complexities, typologies and recommendations* [Online]. Available: http://rhap.org.za/rhap-discussion-document-defining-rurality-within-context-health-policy-planning-resourcing-service-delivery/ [Accessed 9 July 2016].
RURAL HEALTH ADVOCACY PROJECT. 2015. *Rural-Proofing For Health: Guidelines* [Online]. Available: http://rhap.org.za/wp-content/uploads/2015/02/2015-01-13-RHAP-Rural-Proofing-Guideline-A4-Email-1.pdf [Accessed 9 July 2016].
RURAL HEALTH ADVOCACY PROJECT. 2016. *Report on rural health imbizo Ganyesa 12 May 2016* [Online]. Available: http://rhap.org.za/wp-content/uploads/2016/05/Report-back-Rural-Health-Imbizo_Ganyesa-21-May-2016.pdf [Accessed].
SANAC 2011. National Strategic Plan on on HIV, STIs and TB 2012-2016.
SARIAH, A., RUGEMALILA, J., PROTAS, J., ARIS, E., SIRIL, H., TARIMO, E. & URASSA, D. 2019. Why did I stop? And why did I restart? Perspectives of women lost to follow-up in option B+ HIV care in Dar es Salaam, Tanzania. *BMC Public Health,* 19**,** 1172.
SASAKI, Y., KAKIMOTO, K., DUBE, C., SIKAZWE, I., MOYO, C., SYAKANTU, G., KOMADA, K., MIYANO, S., ISHIKAWA, N. & KITA, K. 2012. Adherence to antiretroviral therapy (ART) during the early months of treatment in rural Zambia: influence of demographic characteristics and social surroundings of patients. *Annals of clinical microbiology and antimicrobials,* 11**,** 1-11.
SCHNEIDER, H. 2009. Phase 1 results access challenges in TB, ART and maternal health services. *Johannesburg: Researching Equity in Access to Health Care Project (REACH)*.
SHIHUNDLA, R. C., LEBESE, R. T. & MAPUTLE, M. S. 2016. Effects of increased nurses' workload on quality documentation of patient information at selected Primary Health Care facilities in Vhembe District, Limpopo Province. *Curationis,* 39**,** 1-8.
SHUMBUSHO, F., VAN GRIENSVEN, J., LOWRANCE, D., TURATE, I., WEAVER, M. A., PRICE, J. & BINAGWAHO, A. 2009. Task shifting for scale-up of HIV care: evaluation of nurse-centered antiretroviral treatment at rural health centers in Rwanda. *PLoS Med,* 6**,** e1000163.
SLINKARD, M. S. & KAZER, M. W. 2011. Older adults and HIV and STI screening: the patient perspective. *Geriatric Nursing,* 32**,** 341-349.
STATISTICS SOUTH AFRICA. 2011a. *Naledi Local Municipality* [Online]. Available: https://www.statssa.gov.za/?page_id=993&id=naledi-municipality [Accessed 09 June 2023].
STATISTICS SOUTH AFRICA. 2011b. *The South Africa I know, The home I understand* [Online]. Available: http://www.statssa.gov.za/ [Accessed 12 July 2017].
STEVENS, W. S. & MARSHALL, T. M. 2010a. Challenges in implementing HIV load testing in South Africa. *J Infect Dis,* 201 Suppl 1**,** S78-84.
STEVENS, W. S. & MARSHALL, T. M. 2010b. Challenges in implementing HIV load testing in South Africa. *Journal of Infectious Diseases,* 201**,** S78-S84.
STINSON, K., GIDDY, J., COX, V., BURTON, R., IBETO, M., CRAGG, C., VAN CUTSEM, G., HILDERBRAND, K., BOULLE, A. & COETZEE, D. 2014. Reflections on a decade of

delivering PMTCT in Khayelitsha, South Africa. *Southern African Journal of HIV Medicine,* 15**,** 30-32.
STOCKOUTS, S. 2017. STOP STOCK OUTS 4TH NATIONAL SURVEY REPORT (2017)

STUCKLER, D., BASU, S. & MCKEE, M. 2011. Health care capacity and allocations among South Africa's provinces: infrastructure–inequality traps after the end of apartheid. *American journal of public health,* 101**,** 165-172.
THE GOVERNMENT OF SOUTH AFRICA 1996. Constitution of the Republic of South Africa.
THE LOCAL GOVERNMENT HANDBOOK A COMPLETE GUIDE TO MUNICIPALITIES IN SOUTH AFRICA. *Dr Ruth Segomotsi Mompati District (DC39)* [Online]. Available: http://www.localgovernment.co.za/districts/view/41/Dr-Ruth-Segomotsi-Mompati-District-Municipality [Accessed 13 August 2016].
UCT 2011. TIER.net, HIV Electronic Register

UEBEL, K., FAIRALL, L., RENSBURG, D., MOLLENTZE, W., BACHMANN, M. O., LEWIN, S., ZWARENSTEIN, M., COLVIN, C. J., GEORGEU, D. & MAYERS, P. 2011. Task shifting and integration of HIV care into primary care in South Africa: the development and content of the streamlining tasks and roles to expand treatment and care for HIV (STRETCH) intervention. *Implement Sci,* 6.
ULIN, P. R., ROBINSON, E. T. & TOLLEY, E. E. 2004. *Qualitative Methods in Public Health: A Field Guide for Applied Research,* Wiley.
UNAIDS. 2014. *90–90–90 - AN AMBITIOUS TREATMENT TARGET TO HELP END THE AIDS EPIDEMIC* [Online]. Available: http://www.unaids.org/en/resources/documents/2014/90-90-90 [Accessed 4 March 2017].
UNAIDS. 2016. *AIDSinfo* [Online]. Available: http://aidsinfo.unaids.org/ [Accessed 3 March 2017].
UNAIDS. 2018. *AIDSinfo* [Online]. Available: https://www.unaids.org/en/regionscountries/countries/southafrica [Accessed 20 October 2020].
UNICEF, W. H. O. D. O. C. A. H. 2005. *Handbook IMCI: integrated management of childhood illness,* World Health Organization.
VAN RENSBURG, D. H., STEYN, F., SCHNEIDER, H. & LOFFSTADT, L. 2008. Human resource development and antiretroviral treatment in Free State province, South Africa. *Human resources for health* 6**,** 15.

VERSTEEG, M., DU TOIT, L. & COUPER, I. 2013. Building consensus on key priorities for rural health care in South Africa using the Delphi technique. *Global Health Action,* 6**,** 10.3402/gha.v6i0.19522.
VISAGIE, S. & SCHNEIDER, M. 2014. Implementation of the principles of primary health care in a rural area of South Africa. *African Journal of Primary Health Care & Family Medicine,* 6**,** 1-10.
VISSER, C. A., WOLVAARDT, J. E., CAMERON, D. & MARINCOWITZ, G. J. 2018. Clinical mentoring to improve quality of care provided at three NIM-ART facilities: A mixed methods study. *African journal of primary health care & family medicine,* 10**,** 1-7.
WHITE, J., PHAKOE, M. & RISPEL, L. C. 2015. 'Practice what you preach': Nurses' perspectives on the Code of Ethics and Service Pledge in five South African hospitals. *Global Health Action,* 8**,** 26341.
WHO. 2007. *Task shifting to tackle health worker shortages* [Online]. Available: http://www.who.int/healthsystems/task_shifting_booklet.pdf [Accessed].

WHO. 2008. *Task Shifting Global Recommendations and Guidelines* [Online]. Available: http://www.who.int/healthsystems/TTR-TaskShifting.pdf?ua=1&ua=1 [Accessed 7 March 2017].
WHO 2010a. Priority Interventions HIV/AIDS prevention, treatment and care in the health sector
WHO 2010b. The world health report: health systems financing: the path to universal coverage: executive summary. World Health Organization.
WHO 2021. Health Promotion Glossary of Terms 2021.
WORLD HEALTH ORGANIZATION 1978. Alma Ata Declaration.
WORLD HEALTH ORGANIZATION 2010. Increasing access to health workers in remote and rural areas through improved retention: Global Policy Recommendations. Geneva.
WORLD HEALTH ORGANIZATION. 2017. *The WHO Health Systems Framework* [Online]. Available: http://www.wpro.who.int/health_services/health_systems_framework/en/ [Accessed 12 June 2017].

APPENDIX ONE: PLAGIARISM DECLARATION

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I Petronella Nthabiseng Sibisi (Student number: 1453807) am a student registered for the degree of Master of Public Health (MPH) in the academic year 2023.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature:  Date: 09 June 2023

APPENDIX 1: INFORMATION LETTER FOR IN-DEPTH INTERVIEW

Study Title

Exploring nurses' experiences in the implementation of Nurse Initiated and Managed Anti-Retroviral Therapy in Primary Health Care facilities in Dr Ruth Segomotsi Mompati District, North West Province

Hello, my name is Nthabiseng Sibisi. I am a registered student of the Faculty of Health Sciences; at the University of Witwatersrand, currently in my second year studying Master of Public Health; Rural Health.

Research is a requirement in part completion of my studies. I am doing research on nurses' experiences in implementation of Nurse Initiated and Managed Anti-Retroviral Therapy (NIMART). The aim of the study is to explore the nurse's experiences in implementation of NIMART in Dr RSM district about their perceptions and experiences of the NIMART implementation process as well as explore, describe, and analyse what they perceive to be the facilitating factors and barriers to NIMART implementation in Dr Ruth Segomotsi Mompati (Dr RSM) district.

I am asking for you to participate in the in-depth interviews for this study. You are legible for this study because you are NIMART trained and implementing in Dr RSM Primary Health Care facilities.

This is a qualitative study and data will be collected using in-depth interview that will run for 1hour to 1hour 15 minutes. I will also need your permission to audio record the interview so that I can analyze the discussion.

For the maintenance of confidentiality and anonymity the interviews will be conducted in a private room and the discussion will remain between the researcher and the participant. Codes will be allocated to your name for de-identification during transcription. The recorded data will be stored in a different computerized software to avoid loss and manipulation and only the researcher and supervisors will have access to the original transcripts. The original tape records will be kept under lock and key at the researcher's possession. The final report will be shared with the North West Provincial Office- Health and the district for dissemination. Participation is totally voluntary, and you will not face any negative consequences if you decide not to participate or to withdraw at any stage in this study. You also have the right not to answer questions if you feel uncomfortable to do so.

Your participation will be highly appreciated and should you need any clarity or to obtain results of the study, kindly contact me at 0727498004. The results of this study will be presented to the Department of Health during research day. For reporting complaints or any other problem on any aspect of the study, the following contact details can be used: HREC (Medical) Chairperson: Prof. P. Cleaton-Jones Chairperson and Ms Zanele Ndlovu ndlovu@wits.ac.za Tel: 011 7171252.

Yours Sincerely,

P. N. Sibisi

APPENDIX 2: INFORMED CONSENT FORM

Title of Study: Nurses' experiences in implementing Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) in Primary Health Care facilities in Dr Ruth Segomotsi Mompati District, North West Province

I confirm that I have been informed by Petronella Nthabiseng Sibisi a about the nature of the study. I have also read/it was read to me, and I understood the information sheet and have had the opportunity to ask questions.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

I understand that information sections of any part of my interview will be looked at by Petronella Nthabiseng Sibisi and authorized parties (Dr, Richard Cooke, and Dr Motlatso Mlambo, the study supervisors). I am aware that I will undergo an audio recorded interview. This information will be kept under lock and key in Petronella Nthabiseng Sibisi's possession. I have also been informed that the study findings including details such as my name and facility name will be anonymously processed into a computerised system. Data will be kept for two years if published or six years if not published, after this period the data will be destroyed.

Should you wish to contact us at any stage regarding consent, contact Petronella Nthabiseng Sibisi 0727498004 or Dr Richard Cooke, and Dr Motlatso Mlambo (supervisors) on 011 717 2021/2650

I agree to take part in the above-mentioned study. I hereby give consent to be interviewed as per the above-mentioned conditions and for the purposes of research and to do test/s (name).

……. ……..
……..

Participant Name and Surname Signature
Date:

Translator/Other Person Explaining Informed Consent
(Designation)…….

…….. ……
……..

Printed name Signature Date:

Witness (If applicable):

…… ……

……..

Printed name Signature Date:

APPENDIX 3: SEMI-STRUCTURED INTERVIEW GUIDE FOR INDEPTH INTERVIEWS

DATE……

Title of Study: Exploring nurses' experiences in the implementation of Nurse Initiated and Managed Anti-Retroviral therapy in Primary Health Care facilities in Dr Ruth Segomotsi Mompati District, North West Province

Name of the Interviewer: Nthabiseng Sibisi

Which year were you NIMART trained?

How long have you been implementing NIMART?

Gender:

Code:

Venue:

Introduction

Hello, my name is Nthabiseng Sibisi, and I will be conducting this interview. Thank you for taking time to participate in this study, you are making a great contribution in the research field. The aim of the study is to explore the nurse's experiences in implementation of NIMART in Dr RSM district about their perceptions and experiences of the NIMART implementation process as well as explore, describe, and analyse what they perceive to be the facilitating factors and barriers to NIMART implementation in Dr Ruth Segomotsi Mompati (Dr RSM) district. Your contribution will assist me to make recommendations to promote facilitating factors and overcome barriers in NIMART implementation. Your participation is highly valued and what we discuss here will remain between us. I will ensure anonymity and confidentiality by allocating a code to you and not use your name when I transcribe data from this interview. Kindly be at liberty to air your views, there is no right or wrong answer. The interview will last from 1hour to 1hour 15 minutes. A indicated in the informed consent, this interview will be recorded, kindly confirm verbally that you are aware and are ok with recording this session. Also remember that you are free not to answer questions you are uncomfortable with.

Questions

1. **Exploring** the understanding of the NIMART implementation process

In your opinion what does the NIMART implementation process entail?

2. **Identifying facilitating factors** explore nurses' perceptions of facilitating factors to NIMART implementation.

Would you kindly share how you have managed to implement NIMART?

What are the things that have made it easier?

What motivates you to keep going?

3. **Identifying** the barriers that inhibit NIMART implementation.

Kindly share the barriers that prevent smooth NIMART implementation.

What makes it difficult?

Please explain the

APPENDIX 4: PERMISSION TO PERFORM DIGITAL RECORDING DURING IN DEPTH INTERVIEW

Dear participant

I would like to request your permission to record the interview. It is important to record the interview to ensure accuracy in the analysis of the research results. The recorded data will be stored in a different computerized software to avoid loss and manipulation and only the researcher and supervisors will have access to the original transcripts. The original tape records will be stored under lock and key in my possession.

Thank you.

P.N. Sibisi

……..

MPH Student (School of Public Health)

University of Witwatersrand

CONSENT TO TAPE/RECORD A DIGITAL RECORDING

I…… have been informed that this interview will be recorded by P. N. Kegakilwe. I agree to participate willingly and understand the reason for recording. I also understand that the records will be kept in safe storage under lock and key by the researcher. I hereby agree for this interview to be recorded.

……..

Participant's signature

……

Date and Time

APPENDIX 5: PERMISSION LETTER: DEPARTMENT OF HEALTH

Nthabiseng Sibisi
Student number: 1453807
Email: nthabisengsibisi3@gmail.com
C: 0727498004/ W: 018 462 2369
Klerksdorp

3 May 2017

The Director
Policy, Planning, Research, Monitoring and Evaluation
North West Province Department of Health
Mahikeng

Subject: Application for permission to conduct a research study in Dr Ruth Segomotsi Mompati District

Dear Sir/Madam

I am a registered student of the Faculty of Health Sciences; at the University of Witwatersrand, currently in my second year studying Master of Public Health; Rural Health.
I kindly request permission to conduct research in the Dr Ruth Segomotsi Mompati District as it is a requirement in part completion of my studies.

The research aims to explore the nurse's experiences in implementation of NIMART in Dr RSM District. I intend to commence my data collection from October 2017 to March 2018. I am in the process of obtaining ethics approval from the Wits University Human Research Ethics Committee. Once ethics approval is obtained, I am prepared to share the study protocol, the findings, and the recommendations with your office and/or relevant stakeholders.

For any other enquiries kindly contact me via email on nthabisengsibisi3@gmail.com.

Ms Petronella Nthabiseng Sibisi

Signature……

APPENDIX 6: APPROVAL BY THE NORTH WEST PROVINCIAL HEALTH OFFICE FOR POLICY, PLANNING, RESEARCH, MONITORING & EVALUATION

health
Department of
Health
North West Province
REPUBLIC OF SOUTH AFRICA

3801 First Street
New Office Park
MAHIKENG, 2735

Enq: Nthabiseng Mapogo
Tel: 018 391 4504
NMapogo@nwpg.gov.za
www.nwhealth.gov.za

POLICY, PLANNING, RESEARCH, MONITORING AND EVALUATION

Name of researcher : Ms. P.N. Kegakilwe
University of the Witwatersrand

Physical Address _____
(Work/ Institution) _____
_____

Subject : Research Approval Letter – Nurse's experiences in implementing Nurse Initiated Management of Anti-Retroviral (NIMART) in Primary Health Care Facilities in Dr. Ruth Segomotsi Mompati District, North West Province.

This letter serves to inform the Researcher that permission to undertake the above mentioned study has been granted by the North West Department of Health. The Researcher is expected to arrange in advance with the chosen facilities, and issue this letter as proof that permission has been granted by the Provincial office.

This letter of permission should be signed and a copy returned to the department. By signing, the Researcher agrees, binds him/herself and undertakes to furnish the Department with an electronic copy of the final research report. Alternatively, the Researcher can also provide the Department with electronic summary highlighting recommendations that will assist the department in its planning to improve some of its services where possible. Through this the Researcher will not only contribute to the academic body of knowledge but also contributes towards the bettering of health care services and thus the overall health of citizens in the North West Province.

Kindest regards

Dr. FRM Reichel
Director: PPRM&E

02/05/2018
Date

Researcher

3/5/2018
Date

1

Healthy Living for All

APPENDIX 7: HUMAN RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Ms Petronella Nthabiseng Kegakilwe

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M170971

NAME: (Principal Investigator)	Ms Petronella Nthabiseng Kegakilwe
DEPARTMENT:	School of Public Health Centre of Rural Health
PROJECT TITLE:	Nurse's Experiences in Implementing Nurse Initiated Management of Anti-Retroviral (NIMART) in Primary Health Care Facilities in Dr Ruth Segomotsi Mompati District, North West Province
DATE CONSIDERED:	29/09/2017
DECISION:	Approved
CONDITIONS:	Research can only commence once Clinic Manager's permission is obtained from each study site.
SUPERVISOR:	Dr Richard Cooke and Dr Motlatso Mlambo
APPROVED BY:	Prof C Penny, Chairperson HREC (Medical)
DATE OF APPROVAL:	03/04/2018

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

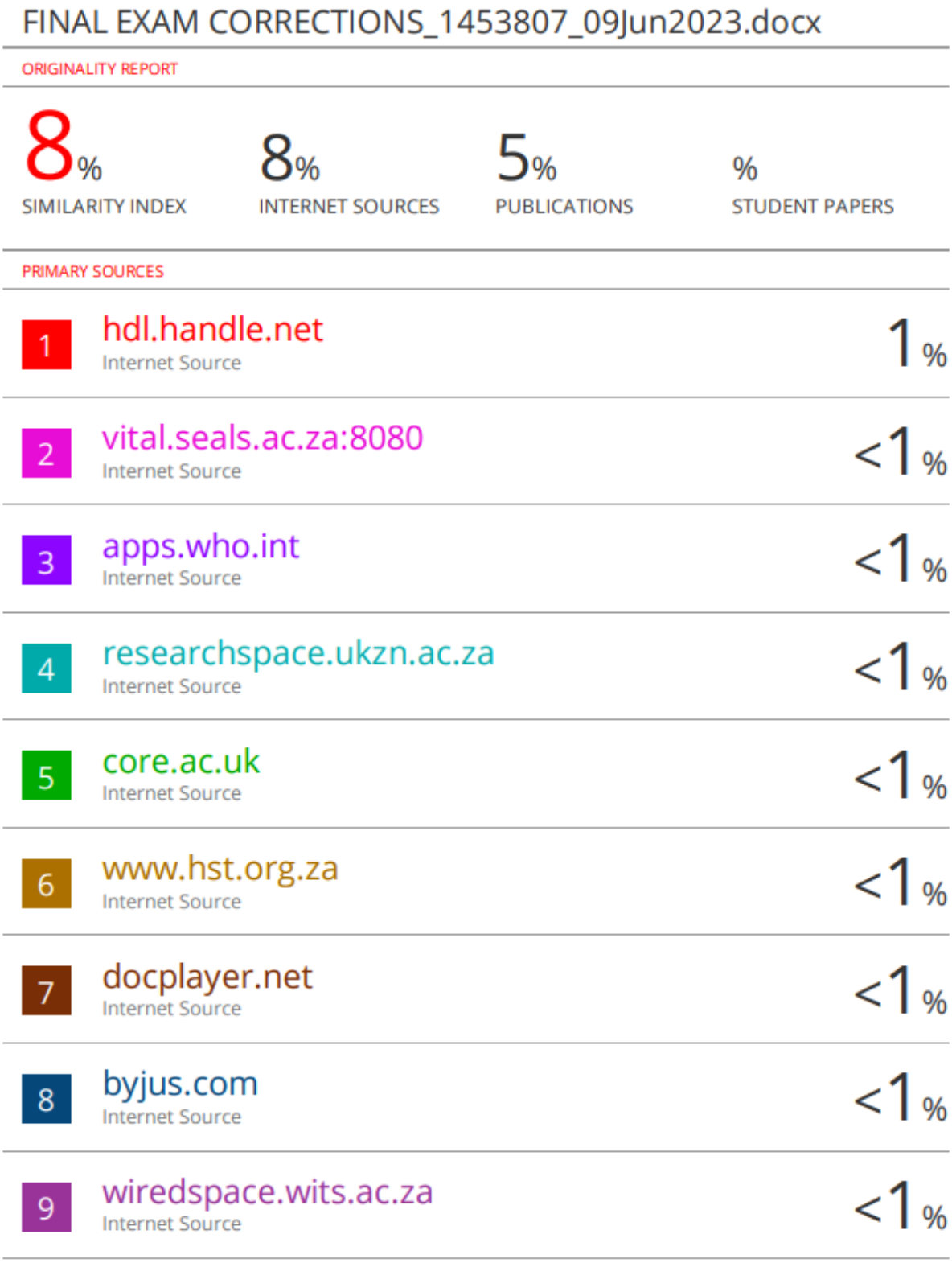
To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 301, Third floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in October and will therefore be due in the month of October each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

6/04/2018
Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX 8: ORIGINALITY REPORT



FINAL EXAM CORRECTIONS_1453807_09Jun2023.docx

ORIGINALITY REPORT

8%	8%	5%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	hdl.handle.net Internet Source	1%
2	vital.seals.ac.za:8080 Internet Source	<1%
3	apps.who.int Internet Source	<1%
4	researchspace.ukzn.ac.za Internet Source	<1%
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