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EXPLORING PROVIDER'S PERCEPTIONS ON THE FACILITATORS AND BARRIERS TO IMPLEMENTATION OF NURSE INITIATED MANAGEMENT ANTIRETROVIRAL THERAPY IN MANZINI REGION, SWAZILAND.

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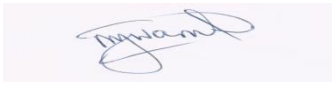
Research report submitted in fulfilment of the degree of Master of Public Health (MPH) at the University of Witwatersrand

Supervisor: Prudence Ditlopo

July 2015

DECLARATION

I, the undersigned, do hereby declare that the work contained in this research report is my original work and has not been in its entirety and in part been submitted for a degree at any University



July 2015

Signature **Date**

ABSTRACT

Introduction: Swaziland is facing a very high HIV prevalence and critical human resources for health (HRH) crisis. The Nurse Initiated and Managed Anti-Retroviral Treatment (NIMART), a task shifting program to capacitate nurses to offer ART services, was introduced in 2009 by the government of Swaziland to address the human resources for health (HRH) challenges in the country. Although the country has attained 80% coverage in ART provision amongst adults, the ART coverage in children below 15 years of age is 9% which falls way below the WHO stipulated proportion of 15% in that age group. In addition, ever since the NIMART was introduced there have been limited studies done in Swaziland to explore the perceptions of health workers with regards to its implementation. This study explored providers' perceptions on the facilitators and barriers to the NIMART implementation in Manzini Region.

Materials and Methods: An exploratory qualitative study was used to explore providers' perceptions of the facilitators and barriers to the implementation of NIMART services in Manzini Region, Swaziland. A semi-structured interview guide was used to interviews with nurses, clinic managers and medical doctors who were purposively selected from five urban and three rural clinics offering NIMART services in Manzini Region, Swaziland. Thematic content analysis was used to analyse data guided by the Donabedian conceptual framework.

Results: The findings showed that two weeks training was offered to the professional nurses before they were certified as NIMART nurses. The first week of training was mainly theory classes while the second week was on-site practical training. The NIMART program was perceived as vital by the providers interviewed as it improved access to ART, reduced patient waiting times, empowered nurses and was a cost effective program to address the shortages of doctors in the country.

Structural factors like availability of health facilities, professional nurses, antiretroviral drugs and antiretroviral treatment guidelines at the facilities visited were reported by

most respondents as facilitators of the implementation of the program. Process factors like the training of NIMART nurses in some facilities, the partnership between the Ministry of Health and various nongovernmental organisations, the health workers commitment and team work greatly facilitated NIMART implementation.

Structural barriers like limited paediatric antiretroviral regimen choices and limitations in paediatric ART policy and legislation were mentioned to negatively affect ART uptake in children. Other barriers like children's dependency on adult caregivers for their health issues and poor socioeconomic circumstances in communities were mentioned to be hampering ART uptake in children. Process factors like inadequate training of the NIMART nurses in some clinics, parents' and caregivers' myths and misconceptions around HIV, AIDS and ART, high HIV and AIDS stigma and poor access to health services were also raised.

Conclusion and Recommendations: Even though there were facilitating factors of the NIMART program like availability of ART drugs and ART treatment guidelines which have been seen to have played a major role in ART uptake in adults, there are still many barriers to the implementation of NIMART as evidenced by the poor ART uptake in children. The inadequate training of NIMART nurses on paediatric ART, children's total dependency on adults for their health needs and parents' and caregivers' misconceptions around HIV and AIDS negatively impacted the paediatric ART program. Other barriers included poor socioeconomic status and paediatric ART policy and legislation limitations. As a result, the recommendations are that the NIMART training program for nurses be improved with particular emphasis on paediatric ART. There is need to incorporate NIMART training into the nursing curriculum to ensure that more nurses are trained in ART provision. Community awareness needs be raised to address the issues around stigma, myths and misconceptions of HIV and AIDS through educational programs. There is also a need to increase the recruitment of nurses and improve motivation of nurses through provision of incentives.

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ABBREVIATIONS

AIDS: Acquired Immune Deficiency Syndrome

ART: Antiretroviral Therapy

DALY: Disability adjusted Life Years

DHS: Demographic Health System

EGPAF: Elizabeth Glaser Paediatric AIDS Foundation

FLAS: Family Life Association of Swaziland

GDP: Gross Domestic Product

HIV: Human immunodeficiency virus

ICAP: International Centre for AIDS Programs

IMCI: Integrated Management of Adult and Adolescent Illness

MDG: Millennium Development Goals

MoH: Ministry of Health

MSF: Medicine sans Frontiers

NARTIS: Nurse-led Anti-retroviral Therapy Initiation in Swaziland

NERCHA: National Emergency Response Council on HIV and AIDS

NGOs: Non-Governmental Organisations

NIMART: Nurse Initiated Management Anti-retroviral Therapy

PEPFAR: President's Emergency Plan Fund for AIDS Relief

PLHIV: People living with HIV

REACH: Researching for Excellence in Adolescent Care and Health

STRETCH: Streamlining tasks and roles to expand treatment and care for HIV

TEBA: The Employment Bureau of Africa

UNIAIDS: United Nations Initiative on Acquired Immunodeficiency Syndrome

VCT: Voluntary Counselling and Testing

WHO: World Health Organization

YLL: Years of Life Lost

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CHAPTER 1: INTRODUCTION AND LITERATURE REVEIW

1.1 Introduction and Background

Swaziland is a kingdom state in the Southern Africa with a population of about one million and is a low-income country faced with many challenges ranging from poor economy to poor health outcomes [1]. High maternal and child mortality continues to be key health challenges, coupled with low life expectancy of 37 years for both sexes [2].Communicable diseases are the major contributor of death and years of life lost (YLL) and Disability Adjusted Life Years (DALY) [3]. Human immune deficiency virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) are top causes of death, with a prevalence rate of 26% amongst the reproductive age group of 15-49 years [4] and 41.1% in pregnant women seeking antenatal care services [4]. Some of the possible factors contributing to this high prevalence include migration within and out of Swaziland for employment reasons [5], cultural values like polygamy [6] as well as low condom use [7].The high HIV pandemic is a major challenge for a country with low total expenditure on health of 6.6% of the Gross Domestic Product (GDP) [8].Like many other low-income countries, Swazilandis badly hit by shortage of human resources for health [2]. The country does not have a Medical University of its own and so relies entirely on foreign trained doctors of which the minority is of local origin [9]. There is also high physician turnover due to migration of doctors for greener pastures [10]. According to the World Health Statistics, the doctor patient density is 0.16 per 1000 and that for nurses and midwives is at 6.30 per 1000 [2]. Prior to the year 2004, only doctors were authorised to initiate and manage patients with HIV and this had negative impact on the fight against HIV and AIDS as doctors are a scarce in the country.

As a measure to controlHIV, Swaziland introduced a nationwide strategy to provide antiretroviral therapy(ART) to people living with HIV (PLHIV) free of charge in 2003 [11].Over the years, the ART coverage has increased and to date, Swaziland boasts ART coverage of more than 80% in adults. However this is still far from the universal access goal which is part of the Millennium Development Goal (MDG) 6 which includes the goal of halting and beginning to reverse the spread of HIV/AIDS by 2015 [12]. Recent analysis in the world and sub-Saharan Africa showed evidence of decline in under 5 mortality by more than 1% even

in severe affected countries like Botswana, Kenya, Lesotho and Swaziland from 2000 to 2010 as compared with 1990 to 2000[13].

Part of the success in adult ART is attributed to task shifting from solely doctor-led provision of ART to Nurse Initiated and Managed Anti-Retroviral Therapy (NIMART). With the introduction of NIMART, nurses were capacitated to initiate ART and this has automatically increased the number of facilities offering ART services from 31 facilities in 2009 to 110 in 2010 [10]. This task shifting of previously doctor-led ART services to nurses resulted in decentralization of ART services from the main hospitals to various centres across the country [10].

Although this move improved ART coverage in adult HIV patients, the provision of ART continues to be low in children below 15 years of age, with only 9 % of those children in need of treatment actually receiving it [12].This is far lower than the World Health Organization (WHO) stipulated coverage of 15% [12] and hence the need to address this low ART coverage and poor adherence to ART in HIV positive children which contribute to child mortality. With regards low paediatric ART coverage, ART initiation and ART adherence aretwo separate issues which need to be addressed. There is no doubt that ART initiation and ART adherence are key to successful ART provision in children. Sustaining antiretroviral therapy (ART) requires accurate and consistent monitoring and it remains a challenge in low income countries. According to the KISTO Manual adherence, is the “extent to which a client’s behaviour coincides with the prescribed health care regimen as agreed through a shared decision-making process between the client and the health care provider” [14]. With the children the use of ARV’s correctly, at the right frequency of dosing remains a challenge.

Adherence can be inadequate despite both provider and patient understanding of non - adherence consequences. At least 95% adherence to HAART is needed in order to prevent drug-resistant HIV strands which may lead to regimen failure and further limit future treatment options [14]. Just like barriers to treatment of other chronic illnesses, HIV treatment barriers are complex and may include poor tolerance to drug side effects, patient-provider relationships as well as patient lifestyles [14]. In comparison to adults infected with HIV, children face different barriers to adherence to treatment. Poverty,

family instability and transfer amongst multiple residences were seen to negatively affect ART access and adherence in children [15].Highly active antiretroviral therapy (HAART) has allowed HIV- infected children and youth to survive well into adulthood [16]. Task shifting is also seen by some researchers as a way of providing cost-effective ART services compared to physician-dependent ART delivery [17].However, its applicability to paediatric ART is still unclear and this is exacerbated by factors such as establishing HIV status in children, specific management of children depending on age, weight, CD4 count and /or percentage, core treatment with TB and prior exposure to drugs of mother-to-child prevention [18].

1.2 Literature Review

1.2.1 Task shifting as an intervention to address HRH shortages

In 2004, the World Health Organization's (WHO) publication Integrated Management of Adult and Adolescent Illness (IMCI) guidelines recommended that nurses and clinical aids be trained to provide primary health care for HIV [19]. The partnership between WHO, United Nations Initiative on Acquired Immunodeficiency Syndrome (UNAIDS) and President's Emergency Plan Fund for AIDS Relief (PEPFAR) formalized the guidelines of task shifting in the year 2008 [20] to address the staff shortages whilst providing quality services. The task shifting process relieves the pressure of work for certain health worker categories while maintaining the quality of care and it is also cost effective [20]. Task shifting is considered a good intervention to address human resources challenges, in particular the shortage of physicians in low income countries [21]. A good example is in the sub- Saharan Africa where the provision of ART coverage is still low with only 30% of the patients eligible for ART actually getting the treatment [21] and shortage of human resources for health [2] remaining a contributing factor of the low ART coverage.

1.2.2 Rationale of task shifting on NIMART

There is sound evidence from various systematic reviews that suggests that good health outcomes can be achieved by shifting roles to nurses [22] and lay or community health workers [23].Task shifting model was seen to be of significant benefit extending beyond HIV patient care [24]. Chung and colleagues reported that the nurse initiated ART for simple

cases saved the doctor 45 minutes in every 1 hour worked by the NIMART nurse. This time saved for the doctor can be efficiently used for other activities like mentoring, quality improvement and other demanding patient care activities [25]. Rolling out of the task shifting program in the whole of Rwanda was projected to reduce the physician's HIV care burden by about 76%; however the impact of the program on the whole health system was not explored [26]. In South Africa, the Streamlining Tasks and Roles to Expand Treatment and Care for HIV (STRETCH) intervention combined nurse training with task shifting of diagnosis, initiation of treatment, follow-up care of patients, integration of HIV care into the rest of the other services in the primary package of care and through the guidance of district management teams and tool kits for implementation [27]. This intervention improved ART coverage in the country [27].

Due to the low physician to patient ratio, nurses' role in the management of key diseases like malaria, HIV, tuberculosis and sexually transmitted diseases have shown positive results in many African countries [28]. There is promising evidence that decentralization and task shifting of ART services from doctors to nurses will provide the much needed solution to the shortage of doctors in many resource limited countries if carefully conceived and monitored [29]. The service evaluation done in the Lubombo region in Swaziland demonstrated that equally good outcomes were achievable from a nurse led primary care setting as compared to a traditional hospital setting [30].Even though not many studies have been done in Swaziland on the feasibility and importance of task shifting through NIMART, evidence from other countries like China [25], Rwanda [26], and South Africa [27] was sufficient to support the implementation ofNIMART in Swaziland.

1.2.3 Challenges which come with task shifting

Although task shifting is recognized as important in the provision of HIV care services, this model is also seen as a bandwagon that is done at the expense of the existing cadres with low pay and poor working conditions [30]. Some scholars have warned that task shifting should not be used as a substitute to investment in health workforce training [31]. Other critics argued that shifting HIV care services to lower cadres could pose a risk of competition of priorities as other services can be neglected in the process [32, 33]. The nurses

themselves are not enough to cater for the health care services and in some areas community health workers are involved in the execution of nursing duties [34, 35].

1.2.4 Task shifting and paediatric ART

Although task shifting is now a broadly practiced approach to improve ART in adults, it is still not well accepted to support ART scale-up in children partly due to unclear policies and evidence in support of this approach as well as less prioritization given to paediatric ART scale-up [35].

Countries with high HIV burden like Zimbabwe and South Africa have adopted task shifting in both paediatric and adult ART, however, due to lack of confidence and skills amongst non-physicians, the implementation has been limited. In Zimbabwe, the paediatric ART care is half that of adults (42% vs. 86%) and task shifting on paediatric ART has been recommended [35]. According to a survey done in 2012, 10 of the 16 surveyed countries in sub-Saharan Africa adopted ART initiation; however, there is still reluctance to apply this approach in HIV-infected children [36]. To date, a few studies have been done in Swaziland to account for the possible successes and failures of task shifting through NIMART program and this study is an entry point in exploring the provider perceptions on facilitators and barriers of the NIMART program in paediatric and adult ART services in theManzini Region.

1.2.5Facilitators and Barriers of NIMART implementation

Some of the facilitators of NIMART program included nurse training, sufficient human resources, clinical support, planning and management [37]. According to the PALSA plus study, done in South Africa the acceptance of NIMART by the nurses as compared to some physicians and managers contributed much to the success of the program [37]. STRECTCH identified use of nurse specific guidelines, clear referral protocols, effective training, support and supervision as factors which influenced nurses' clinical confidence to implement NIMART [27] similarly recent studies mentioned the important potential benefits of protocol based care [38], proper clinical supervision [38] as enhancing the scope and autonomy of nurses in NIMART implementation. There is need for careful consideration in different context to embed NIMART in primary care [39]. Barriers to scaling up of NIMART were mentioned to be complex legislative and policy environment for distribution of ART [27]

Other researchers also noted challenges related to the use of clinical protocols [38] and lack of enough evidence on how protocols can be effectively implemented [40]. In resource limited settings, the human resource and infrastructural constraints were seen to be hindering ART program expansion [40].

1.3 Problem Statement

Considering that it is closer to the reporting of the MDGs in 2015, Swaziland needs to do more to achieve the MDGs of reducing child mortality rate by two-thirds and reverse the spread of HIV and AIDS by 2015 [10]. The benefit of ART provision is obvious, for example in highly resourced countries ART has allowed children to live healthy and productive lives into adolescence and early adulthood [41]. Similar good outcomes were also documented in low resource countries for example in Ivory Coast, a two-year survival rate of 98% was reported among children with a CD4 cell percentage of 15% [42].Historically, enrolling HIV infected children on ART has lagged behind. Despite WHO recommending that all HIV-infected infants be initiated on ART in the first year of life, this recommendation has been difficult to achieve for many countries, amongst them Swaziland [43].Part of the challenge is attributed to shortages of human resources for health in Swaziland, in particular doctors[2].

1.4 Study Justification

Nurses in Swaziland play a major role in various HIV/AIDS interventions as part of the task shifting process through the NIMART services [13]; which commonly referred to as Nurse-led Antiretroviral Therapy Initiation in Swaziland (NARTIS). Although NIMART have been instrumental in improving ART coverage amongst adults, the reasons for the imbalance in ART coverage between adults and children is still unknown.

It was thus vital to explore how and why a similar impact had notbeen achieved with regard to the provision of ART services to children under-15 years of age. As such, this study explored health worker perceptions on possible barriers and facilitators to NIMART implementation in Manzini Region in order to understand the reasons for low ART coverage amongst children below 15 years.

Perceptions from the nurses, clinic managers and doctors on NIMART provided implementers insights on the program on how the implementation of the NIMART can be improved to achieve higher ART coverage amongst children under the age of 15 years.

1.5 Study Aim and Objectives

This study sought to explore nurses', doctors' and clinic managers' perceptions of the facilitators and barriers to the implementation of NIMART services in Manzini Region, Swaziland. The specific objectives were:

1. To explore the perceptions of nurses, doctors and clinic managers about the process of the implementation of NIMART in the Manzini Region during 2014.
2. To explore the nurses, doctors' and clinic managers' perceptions of the facilitators and barriers to the implementation of NIMART services in Manzini Region during 2014.
3. To explore the nurses, doctors' and clinic managers' perceptions on the perceived benefitsof NIMART implementation on paediatric ARTin Manzini Region.

1.6 Conceptual Framework

The study followed a Donabedian Conceptual Model that provides a framework for examining health services and evaluating quality of care [44]. The model has three categories namely "structure," "process," and "outcomes" [45].

The structural factors are easy to observe and measure and may include factors like physical facility, human resources, equipment [46].

Process factors is a sum of all activities that make up health care which includes diagnosis, treatment , preventive care, patient education and knowledge which may include actions taken by patients and families[47]. Information about process can be obtained from medical records, interviews with patients and practitioners or direct observations [47].

The outcome factors speak to the healthcare outcomes on patients, populations which include quality of life, health status, behaviour, knowledge as well as patient satisfaction [46].The Donabedian conceptual model was simple and ideal for the study. The structure, process and outcome components were very relevant in evaluating health services and perceptions of the quality of care [45].Even though the study did not evaluate health services and perceptions of the quality of care, the Donabedian model was ideal for the study as it provided casual linkages amongst the structural attributes of the setting of in which care occurs, process of care and the outcome of care occurs. In this study the facilitators and barriers to NIMART implementation were best explored using the structure, process, outcome framework.



Figure1: Adopted from Donabedian model on Structure, Process and Outcome

CHAPTER 2: MATERIALS AND METHODS

2.1 Introduction

This chapter discusses the methodology used to conduct the study. The study design, the study setting and the participants will be discussed first followed by the data collection methods, analysis and the ethical considerations.

2.2 Study Design

An exploratory qualitative study was used to explore providers' perceptions of the facilitators and barriers to the implementation of NIMART services in Manzini Region, Swaziland. The qualitative study was ideal for this type of study because it allowed for more in-depth and comprehensive information to be extracted on the possible facilitators and barriers to the implementation of the NIMART program and the perceived benefits of NIMART on paediatric ART.

2.3 Study Setting

The study was done at eight purposively selected clinics out of a total of 15 clinics offering NIMART in Manzini Region. The justification for choosing ManziniRegionwas that it is densely populated and has the highest number of clinics offering ART through the NIMART program. The clinics were chosen to provide urban-rural variations considering that five of these clinics are located in urban areas and three in the rural areas of Manzini Region. The clinics also varied in size of facility, the number of patients on the ART register and the number of the health care workers involved in the provision of ART services; but on average, each clinic had a medical doctor, a clinic manager and four professional nurses. The clinics were basically out-patients clinics providing medical, surgical, obstetrics, sexual and reproductive health including ART services. Data collection at these clinics was done during the period of June to August 2014.

2.4 Study population

The study population was all the nurses, doctors and clinic managers working at the eight clinics in Manzini District in Swaziland offering NIMART services.

2.5 Study Sample

Purposive sampling was used to select the participants based on their work experience in NIMART implementation at the selected facilities. In total, 22 ART providers comprising of doctors, clinic managers, and professional nurses participated in the study. A breakdown of these participants is provided in Table 1.In order to gather comprehensive information and understanding of the process of NIMART implementation at the sampled facilities, only doctors, clinic managers and professional nurses that have worked at the facility for at least one year were included in the sample. This was done by verbally asking participants about the duration of time that they had been providing NIMART services at the selected clinics prior to conducting the actual interviews. Participants that had been working at the facilities for less than a year were excluded from participation.

With the assistance of the clinic managers, the researcher used the health worker duty roster to purposively select participants for the study. The available participants were interviewed once the suited the selection criteria and in some cases appointments with the health workers were made for a future interviews.

Table 1: Breakdown of Participants

	Urban	**Rural**	**Total**
Medical doctors	3	1	4
Clinic managers	5	3	8
Nurses	6	4	10
Total	14	8	**22**

2.6 Data Collection Procedure

In-depth interviews were conducted with relevant participants by the researcher himself from June to August 2014 using semi-structured interview guides. Semi-structured interview guides were considered appropriate for the study because they included open-ended probing questions that allowed for an in-depth exploration of the research topic. The formulation of the semi-structured interview guides was guided by the Donabedian

conceptual framework of structure-process-outcome. Although this framework appears structured with preconceived concepts, an in-depth understanding of these concepts required the use of a semi-structured interview guide.

Prior arrangements were made telephonically and verbally by the researcher himself who physically went to the respective clinics to find the best suitable time to carry out the interviews with the doctors, nurses, clinic managers to avoid any disruptions at work. With the assistance of the clinic managers who provided a list of health workers at the respective facility, the participants' telephone numbers were sought and appointments were made telephonically for those who were absent and those present verbal appointments were made.Before the interview, the purpose of the study was explained to the respondents followed by distribution of detailed information sheets about the study to the research participants, thereafter consent to carry out and record the interview was sought from all participants. The interviews were conducted in a private space at the respective facilities where the participants were working. All interviews were conducted in English and lasted for approximately 45 to 60 minutes. The key issues that were explored included:

- Perceptions on the process of the implementation of the NIMART program.
- Perceptions on the facilitators and barriers to NIMART implementation.
- Perceptions on the benefits on the effectiveness of NIMART.
- Perceptions on possible strategies to improve NIMART implementation.
- Perceptions on the benefits of NIMART on paediatric ART.

2.7 Data Analysis and Quality Assurance

Data collection and analysis was done concurrently. After conducting in-depth interviews with 22 participants, data saturation [48] was reached whereby no new codes and themes were emerging from the interviews and analysis of data. In order to ensure that participants were not misinterpreted, all interviews were audio tape-recorded and thereafter transcribed verbatim in Microsoft Word by the researcher of this report. Thematic content analysis using both deductive and inductive approaches was conducted manually by the researcher on all transcripts through a two-step process. Firstly, each transcript was initially read line by line by the researcher to develop meaning and emerging themes were

highlighted on the printed transcripts by different colours. This was followed by a detailed reading of the transcripts whereby a more interpretive coding was done and dominant themes and sub-themes were identified guided by the conceptual framework. To ensure trustworthiness of the data and inter-coder consistency, both the researcher and his supervisor read at least three transcripts from different groups of participants and discussed discrepancies until agreement on the codes and interpretations was reached. Triangulation was achieved by exploring perceptions from three cadres comprising of nurses, clinic managers and doctors at different clinicsto get an overall picture of the implementation of NIMART.The researcher had substantial previous experience in qualitative study as he had done and published a mixed method study on patient satisfaction in 2011. The study was published in the International Journal of Research and Management (IJRM).The researcher's professional role as a doctor was also very important in ensuring truthfulness, consistency and neutrality of the research findings as he had a full understanding on the NIMART program.

2.8Ethical Considerations

Ethical clearance was sought from the University of the Witwatersrand (Wits) Human Ethics Committee (M131127)**.**Approval to conduct the research was also sought from the Swaziland Ethics Committee (MH/599C/FWA 00015267). Prior to participation in the study, permission was also obtained from all participants. The participants were provided with the study information sheet which explained the purpose of the study and the terms of the respondents' participation. The information sheet had the contact details of the student, his supervisor and the details of the Wits Ethics Committee and the Swaziland Ethics Committee. Participation was completely voluntary and no incentives were provided for participation. The researcher explained to the participants that they could refuse to participate or stop participation at any time without any consequences.

Participant's privacy and anonymity was ensured by protecting their identity through using pseudo identification. . Participants were also assured that information shared with the researcher will not be shared with their managers; it will only be used for research purposes. The information provided by the study participants was kept confidential, only

the researcher and his supervisor had access to the data. It was also explained to the participants that participation in the study had no foreseen risks and benefits.

CHAPTER 3: RESULTS

3.1 Introduction

The findings of this study are organised according to five broad themes in response to the study objectives and the Donabedian Conceptual Framework. These are: 1) perceptions on the process of the implementation of NIMART; 2) perceptions on the facilitators of NIMART implementation; 3) perceptions on the barriers to NIMART implementation; 4) perceptions on the benefits of NIMART; and 5) participants' recommendations on improving the implementation of NIMART. Several sub-themes were identified within each broad theme as illustrated in Table 1 below.

Table 2: Structure of the Results Section

Broad Theme	Sub-Theme
1. Perceptions on the process of the implementation of NIMART	• Participants' roles and experience in NIMART implementation • Training on the implementation of NIMART
2. Perceptions on the facilitators of the implementation of NIMART	**Structural Factors** • Availability of ART drugs and ART guidelines • Availability of health infrastructure **Process Factors** • Training of nurses on ART provision • Commitment of doctors and nurses • Leadership and commitment of the Ministry of Health of Swaziland(MoH) • Patient participation
3. Perceptions on the barriers to implementation of NIMART in paediatric ART	**Structural Factors** • Limited patients' access to health services • Limited paediatric ART regimen choices • Poor socioeconomic circumstances in communities • Limitation in ART legislation and policy • Challenges experienced by NIMART

Broad Theme	Sub-Theme
	nurses **Process Factors** • Children's dependency on adults • High HIV and AIDS stigma in communities • Misconceptions in communities around HIV and AIDS • Inadequate training and monitoring of NIMART nurses
4. Perceptions of the benefits of the NIMART program at selected clinics in Manzini	**Outcome Factors** • Empowerment of nurses • Improved ART access • Improved patient waiting times • Improved quality of care • Alleviate shortage of doctors • Reduction in new HIV infections in children because of PMTCT • Cost effectiveness of the NIMART program
5. Recommendations by respondents on ways to improve the NIMART program	• Improve training of nurses on ART • Recruit more nurses • Provide motivational incentive for nurses • Raise community awareness • Avail more paediatric ART treatment options

3.2 PERCEPTION ON THE PROCESS OF IMPLEMENTATION OF NIMART

Two major sub-themes were derived from the data which better explained the process of the implementation of NIMART and these are:

a) The participants' roles and experience in NIMART implementation.

b) Training of professional nurses on the implementation of NIMART.

The study participants revealed that all the urban clinics that participated in the study had been implementing NIMART since its inception in Swaziland in 2009, whilst the rural clinics had an average of two years of NIMART implementation.

3.2.1 Participants' roles and experience in NIMART implementation

Most urban and rural NIMART professional nurses reported to have at least one year working experience at their respective facilities. These professional nurses were responsible for assessing patients' eligibility for ART and ensuring that necessary investigations such as checking CD4 counts and viral loads were done initiating ART or referring complicated cases to the doctor. The clinic managers, who were senior professional nurses, were responsible for supervising the professional nurses and also implementing the NIMART program. The roles of clinic managers and nurses were similar between rural and urban areas visited.

> *"In this paediatric ART program, my duty is to assess the children according to their ages and those who are eligible for ART I initiate. I am also responsible for the management of all activities at this clinic." (Clinic Manager, Urban Clinic 1)*

Medical doctors in both rural and urban areas were responsible for providing training and mentoring professional nurses and clinic managers on the implementation of NIMART services.

> *"My role as a doctor is basically to provide training to the nurses at regional and national level. We do on-site training of the professional nurses thereafter these nurses are attached to a particular ART clinic before they can go back to their facilities. When the professional nurses are back at the facilities, we visit them to see how they are implementing the program." (Medical Doctor 1, Urban Clinic 5)*

3.2.2 Training of professional nurses on the implementation of NIMART

Regarding training on the implementation of NIMART, the clinic managers, doctors and professional nurses interviewed mentioned that the training was a two week once off training exercise offered by the mentor doctors to the clinic managers and the professional nurses .The first weekof training was for theoretical classes, whilst the second week was for practical on-site training and there was no follow up training.

> *"There was one week for classes plus another one week for on-site training at the clinics offering ART services. We were assessed by doctors who were trained in ART. They expected us to initiate an adult patient on ART, a child on ART, a pregnant*

woman on ART, a TB patient on ART as they monitored."(Professional Nurse 3, Urban Clinic 1)

The NIMART training covered a number of aspects including skills for assessing patient's eligibility for ART initiation, management of patients on ART, patient counselling, and management of opportunistic infections amongst others.

"We learnt baseline information about HIV, AIDS, ART, and IMAI [Integrated Management of Adult Illnesses]. We also learnt to request and interpret baseline tests which are needed before we initiate ART like CD4, FBC [Full Blood Count], LFT [Liver Function Tests], KFT [Kidney Function Tests]." (Clinic Manager1, Urban Clinic1)

The ART training was considered to be crucial by the nurses and doctors who participated in the study and as ensured that NIMART is implemented smoothly. Communication and the working relationships between doctors and nurses offering ART was said to have improved due to ART training.

"It's basically everything but importantly the ART training offered to the nurses has improved working relationships between doctors and nurses." (Medical Doctor 2, Urban Clinic 1)

"I think the training has helped a lot, more nurses are trained on NIMART they know how to initiate." (Clinic Manager, Rural Clinic 2)

3.3 PERCEIVED FACILITATORS OF NIMART IMPLEMENTATION

Five sub-themes related to the participants' perceptions on the facilitators of the implementation of NIMART emerged from the analysis of the data. A huge number of the professional nurses and clinic managers reported that some of the structural factors that contributed to the successful implementation of NIMART were the availability of the ART drugs and the ART guidelines as well as the availability of health infrastructure. Process factors like the training of the nurses on ART provision, leadership and commitment of the Ministry of Health of Swaziland, commitment of doctors and nurses, functional referral networks as well as good patient participation were mentioned to be facilitators of the NIMART. These are explained in details below:

3.3.1 Leadership and commitment of the Ministry of Health of Swaziland (MoH)

The majority of the doctors, nurses and clinic managers interviewed in both rural and urban ART centres gave credit to the leadership and commitment of the MoH of Swaziland for introducing the NIMART program in line with the WHO. The MoH has managed to integrate ART services with the already existing services like Sexual and Reproductive Health (SRH) and this allowed human and physical structure resource sharing and thereby facilitating the program. One medical doctor commented as follows:

> *"The leadership of the MoH of Swaziland through integration of ART services with all other services at clinics and hospitals have contributed a lot to the success of the program." (Medical Doctor 2, Urban Clinic1)*

Nurses were given the autonomy to offer ART services, a role which was previously for the doctors only and this improved access to ART services. It is this confidence that the MoH of Swaziland had in its nurses that also facilitated the NIMART program.

> *"The MoHhasshown trust and belief in the nurses by authorising them to offer ART services; a duty which previously was for the doctors and that has facilitated NIMART implementation." (Professional Nurse1, Rural Clinic3)*

The collaboration between the MoH of Swaziland and its partners like International Centre for AIDS Programs (ICAP), Baylor, Elizabeth Glaser Paediatric AIDS Foundation (EGPAF) in provision of funds for training, medical equipment, drugs and human resources for health was also mentioned as a major contributor to the NIMART program.

> *"A lot has contributed, for example the involvements of various stakeholders together like National Emergency Response Council on HIV and AIDS (NERCHA), ICAP, and Medicine sans Frontiers (MSF) has played a big role." (Professional Nurse 2, Urban Clinic 2)*

The majority of rural and urban NIMART nurses reported that there was a good referral network to and from major ART centres and that the doctors were always available as a back-up to assist during complications. Because of this, these nurses reported that they felt

confident to attend to patients knowing that they could rely on doctors 'availability and existing referral structures.

> *"The easy communication to and from referral centres has also contributed significantly .The nurses in small clinics are always confident once they know that there is back up help from big hospitals." (Medical Doctor2, Urban Clinic2)*

3.3.2 Availability of ART drugs and guidelines

The majority of the professional nurses and clinic managers were of the view that antiretroviral drugs were constantly available in most ART centres and this success was attributed to the Swaziland Ministry of Health of and its partners.

> *"The availability of drugs especially the fixed dose combination TDF/3TC/EFV [Tenofovir, Lamivudine and Efavirenz] which is the drug of choice for adults in Swaziland has greatly contributed to the success of the program. Many patients prefer it as it is taken once daily and this reduces pill burden." (Professional Nurse 1, Rural Clinic 4)*

> "*The drugs are available and accessible. Such availability of ARV meets the demand of the population in need of ART." (Clinic Manager, Urban Clinic 2)*.

Another important enabler for the successful implementation of NIMART as reported by the majority of the participants in both rural and urban clinics visited was the ART guidelines which were readily available at the facility level; these respondents commented that during consultation with the patients, they could constantly refer to these guidelines.

> *"The availability of guidelines has also made the program very easy." (Clinic Manager, Urban Clinic3)*

3.3.3 Availability of physical infrastructure

Although the physical working space was considered as a challenge especially in urban clinics, the availability of that small working space was reported by some respondents in the rural clinics as a facilitating factor to ART provision.

"I will say the availability of structures has enabled the facilitation of the NIMART program, the clinics are there even though the space is a challenge." (Medical Doctor, Rural Clinic 2)

3.3.4 Commitment of nurses and doctors

Some rural nurses and clinic managers interviewed reported that the great commitment which was reflected through teamwork between the nurses and doctors has positively contributed to the success of the program. According to these respondents, both nurses and doctors took ownership of the program.

"Basically I think the willingness of the nurses to go an extra mile and the willingness of the doctors to mentor the nurses on this program has contributed a lot."(Professional Nurse, Rural Clinic 2)

"The team spirit by the doctors, nurses and all workers has contributed positively to the success of the program." (Clinic Manager, Rural Clinic1)

The majority of rural and urban NIMART nurses reported that there was a good referral network to and from major ART centres and that the doctors were always available as a back-up to assist during complications. Because of this, these nurses reported that they felt confident to attend to patients knowing that they could rely on doctors 'availability and these referral structures.

"Once we know that we are working together with bigger hospitals, it is easier to refer patients."(Professional Nurse 1, Rural Clinic2)

"The easy communication to and from referral centres has also contributed positively." (Medical Doctor2, Urban Clinic2)

3.3.5 Patients' willingness to test early

Some of the nurses interviewedat urban clinics gave credit to the patients themselves for their willingness to test early, accept their statuses and to start treatment early. These respondents reported that stigma was slowly reducing. This made the program easy to implement:

"The patients themselves are testing early and accepting their status and most of them access treatment early." (Professional Nurse3, Urban Clinic 1)

"The community is very supportive as noted during community campaigns to educate people on ART." (Professional Nurse2, Urban Clinic 3)

3.4 PERCEIVED BARRIERS TO ART ACCESS IN CHILDREN

The results presented in this section reports on the barriers of the NIMART implementation with particular reference to low uptake of ART in children. Children's dependency on adults, poor socioeconomic status, limitation in ART legislation and policy as well as stigma, myths and misconceptions around HIV and AIDS were reported to be the main barriers to ART access in children. These barriers have significant limitations in terms of initiation and ART adherence in children.

3.4.1 Children's Dependency on adults

The majority of the respondents interviewed in rural and urban clinics mentioned that children health issues are totally dependent upon the adults who may be parents or caregivers as a major limiting factor to ART initiation and adherence in children. By virtue of children failing to make their own decisions with regards to their health matters made them vulnerable, as some times adults do not act in their best interest.

"The children are totally dependent on caregivers or parents, they cannot come to the clinic on their own and they cannot consent on their own and this negatively affects their health care access." (Professional Nurse3, Urban Clinic 1)

Lack of commitment by some caregivers in bringing the children for initiation of treatment and also in ensuring that the children adhere with their medication was raised by the participants.Thislack of adherence was seen to result in treatment failure in HIV positive children. The orphaned children were reported to be at great risk as they were under care of different caregivers who may lack commitment.

"Some caregivers lack commitment to child's health, in some cases the child does not get the medication and this may result in treatment failure due to poor adherence." (Professional Nurse1, Urban Clinic 1)

3.4.2 Poor social structures in communities

The breakdown in family structures mainly due to the HIV was pointed out by the majority of the doctors, nurses and clinic managers in both rural and urban clinics as a major contributor to low pediatric ART access as it negatively impact both ART initiation and adherence. The participants reported that, most children who needed ART were orphans and a huge number of them are cared for by their grandmothers and other relatives. These care givers often do not understand issues about HIV and ART hence they experience challenges in monitoring and ensuring that these orphans get ART appropriately.

"Many of these children have lost one or both parents and are left under the care of elderly grandmothers who have little understanding of HIV and AIDS. In most cases, these grandmothers will be looking after many other grandchildren." (Medical Doctor1, Urban Clinic 2)

In some cases even when both parents were still alive, it was rare to find couples who stayed together as a nuclear family. This posed a challenge in seeking consent to initiate the child on ART.

"Most of the mothers are working, so after delivery they sent their children to the grandmothers. No one can consent for the child to start ART. Even if the mother is present, there won't be anyone to consent for the child most of the time. You know here there are less couples living together; they are usually separated so it takes time for the partner to consent." (Medical doctor 1, Urban Clinic 3)

The fathers in particular, were reported to be a hindrance for children's initiation to ART as shown in the quotation below:

" I think the problem is like here in Swaziland some of the children are not on ART because the fathers do not want the child to be initiated. We wait and wait trying to involve the parents and that is why it takes a long time to initiate children on ART." (Professional Nurse 2, Rural Clinic 3).

3.4.3 Poverty in communities

Most professional nurses and clinic managers interviewed felt that high levels of poverty particularly in the rural areas was a major barrier to access to ART amongst the pediatric population. Lack of money for expenses like transport, medication, food was reported to impact negatively on ART initiation and adherence in children.

"There is a very high level of poverty in the communities and to make matters worse, the grandmothers are left to take care of orphaned children and these grandmothers do not have any source of income hence they struggle with looking after these children."(Professional Nurse2, Rural Clinic 3)

"In most cases, the parents of these children are not working and cannot afford to pay for medical expenses like transport." (Professional Nurse 2, Urban Clinic 4)

3.4.4 ART and NIMART policy inconsistencies

Inconsistencies in ART policies were reported by some rural clinic managers as a major challenge. Differences between the national ART policy and the NIMART policy were noted to be creating confusion in providing care.

"It seems there is a clash of guidelines or polices especially comparing the policies of national ART and NIMART program and this is confusing to us, for example ART regimen for previously exposed babies. " (Clinic Manager, Rural Clinic3)

One urban mentor doctor also highlighted that there were still inconsistent practices in ART provision are and this is detrimental to the ART program:

" There are gaps in the roll-out of information, for example there used to be a trimune baby and it was phased out now we have trimune junior. In some clinics,

nurses in the clinics are still giving trimune baby instead of giving trimune junior." (Medical Doctor2, Urban Clinic 2)

3.4.5 Legislation for ART consent in children limitations

Issues of legislation regarding the age of consent for initiation of ART which is 15 years was perceived to be playing a limiting role in children's access to ART by some providers who felt that more children could have been initiated on ART if the age of consent was revised downwards.

"The other thing mainly in children under 15 is the laws and regulations that prevent children to consent for testing themselves. If a child comes for testing they are supposed to come with a parent or a guardian to consent for testing." (Professional Nurse2, Urban Clinic 5)

"Most children who we see are under the consent age so only parents or guardians give consent for the children to start medication." (Medical Doctor 1, Urban Clinic 5)

3.4.6 Limited pediatric ART regimen options

There was a general feeling amongst the majority of the nurses and doctors interviewed that the main challenge with regard to pediatric ART regimens was that in some cases, the treatment dosages in children depended on their weight hence there is a specific dosage required for a child of a certain weight. At the moment, only the 1st and 2nd line treatment options are available for children in the country unlike in adults where there are many treatment options, with the 1st, 2nd and 3rd line treatment options being available for adults.

"I can say that the challenges are that the ARVs that are being given to children are a short supply. There is only one first line regimen for children. If the child is exposed to niverapine automatically we do not give niverapine again and we then opt for the second line. This limits the child's future treatment options as there is no 3rd line treatment at the moment." (Clinic Manager, Urban Clinic1)

3.4.7 Misconceptions in communities around HIV and AIDS

Most rural professional nurses reported that misconceptions by parents that children are sometimes too young to start ART and that ART had negative effects on their children's health.

> *" In some cases some parent's belief that their children are too small to start ART, they feel like they need to wait and some even refuse to take PMTCT during pregnancy." (Professional Nurse 1, Urban Clinic 4)*

Almost similar views were raised by some urban nurses who reported that some parents are intimidated by the fact that ART is a lifelong treatment and hence they have doubts whether they will be able to adhere and to them it is better not to start at all.

> *"Some parents are afraid of the adherence issues since ART is lifelong medication." (Professional Nurse 2, Urban Clinic 2)*

In some cases, parents have the perception that if their HIV positive children are not sick, then there is no need for them to start ART until they are critically ill.

> *"The main reason why children are difficult to initiate on ART is that most mothers feel that is not necessary to start their HIV positive children on ART once they are apparently healthy."(Medical Doctor, Rural Clinic2)*

3.4.8 Use of alternative health services

Most rural nurses reported that seeking of services from traditional healers instead of health facilities by some parents to negatively affect ART uptake in children.

> *"Some parents go to traditional healers to get advice on their children's health instead of coming to the clinics." (Professional Nurse 2, Rural Clinic1)*

3.4.9 High HIV and AIDS stigma in communities

Some of the urbanmentor doctors and professional nurses interviewed felt that there was still serious stigma when it comes to HIV and AIDS in communities as some parents suffer from denial and take time to accept their statuses and this was a major barrier to children's ART access.

> *"I think the reason is that most parents are not forthcoming with their children for testing due to denial. If they find out that their child is HIV positive, they might be forced to get tested themselves." (Medical Doctor, Urban Clinic 4)*

> *"The other reason is stigma; most parents are worried that when children start ARVs, they can move around talking about it and in the end everyone will know that they are also taking ARVs."(Professional Nurse, Urban Clinic 4)*

There was a general consensus amongst the medical doctors, professional nurses and clinic managers interviewed that due to the stigma around HIV and AIDS many parents fail to disclose their children's HIV status to relatives and other caregivers and this negatively affected ART uptake in children.

> *"When it comes to children taking medication, a lot of people are involved like caregivers and other relatives as parents may be working. The mother has difficulty in disclosing to the caregivers. They would rather not have their children on ART so that their status remains a secret." (Clinic Manager, Rural Clinic3)*

Failure to disclose the children's HIV status to the children themselves by some parents was also perceived to decrease ART intake in children. One clinic manager reported that most children who discover their HIV status at a later age defaulted their medication due to depression.

> *"You find that most children who are on ART who were not informed of their HIV status early default treatment at a later age due to stress, denial and depression". (Clinic Manager, Urban Clinic 5)*

3.4.10 Limited access to health services

Some professional nurses interviewed in the rural clinics felt that quite a huge number of children who needed ART services were from remote inaccessible areas and this posed a huge barrier to access care.

> *"Children coverage is low because they come from remote areas. Some of the deliveries are at home and it becomes difficult to know the status of those children delivered at home."(Professional Nurse1, Rural Clinic 2)*

In contrast the issue of access to healthcare services was not a challenge in the urban clinics.

> *"It won't be access to health facilities because they still go to other clinics for other services." (Medical Doctor2, Urban Clinic1)*

Some rural professional nurses reported that lack some health equipment and supplies for example in remote areas reagents for tests like CD4, liver and kidney function tests were on several occasions out of stock to add on to that there was no transport to transport blood samples to bigger health centres and this limited patients access to health services.

> *"Sometimes the machines for kidney and liver function tests and CD4 are broken down and the patients lose trust in you." (Professional Nurse2, Urban Clinic 2)*

> *"There are also challenges with sample transportation from remote areas to the laboratories.*" (Professional Nurse, Rural Clinic 2)

3.4.11 Challenges experienced by NIMART nurses

The task shifting exercise was perceived by most health workers to have added additional work load to the nurses who were already overburdened. This was reported mostly by professional nurses in rural clinics where there were fewer nurses compared to urban centres.

> *"In the rural clinics 1-2 nurses attend to over 100 patients per day. With this pressure they are not able to practice their skills adequately." (Professional Nurse1, Rural Clinic 1)*

'When we go out we see a lot of gaps. I have a feeling that in rural health clinics, the nurse/ patient ratio is very bad and there is too much work pressure." (Professional Nurse1, Rural Clinic 2)

A number of doctors, clinic managers and the nurses reported that most NIMART nurses find pediatric ART challenging as compared to adult ART. Despite ART training most NIMART nurses are not comfortable in offering pediatric ART as they feel it is a specialized area and this negatively affect ART intake in children.

"The feedback we get from many nurses is that pediatric ART is very difficult. They continue sending patients to us. There is this unknown fear that pediatric ART is a specialty amongst many nurses." (Medical Doctor 2.Urban Clinic 1)

"*I attribute this incompetence of the nurses to the lack of adequate training of nurses on pediatric ART." (Clinic Manager, Urban Clinic 1)*

It was also reported thatthe movement of staff between departments and institutions was also raised as a major challenge to the NIMART program. The turnover of trained NIMART nurses is high as they sometimes leave for greener pastures or are sometimes rotated to other departments. This has significant negative implications on the NIMART program.

"The other challenges are rotation of staff trained in NIMART. Staff turnover is also a challenge when staff leaves for greener pastures." (Professional Nurse 2, Urban Clinic 3)

3.5 PERCEPTIONS ON THE BENEFITS OF NIMART AT SELECTED CLINICS IN MANZINI DISTRICT

This section reports on the perceived benefits of the NIMART program. The program was seen to improve quality of ART care through improving ART access, reducing patients waiting time and it was also seen to be empowering nurses.

3.5.1 Empowerment of nurses

The NIMART program was perceived by the majority of professional nurses and clinic managers in both rural and urban clinics as empowering as it widened their scope of practice. Nurses were now seen to be offering services that were previously offered by the doctors only.

> *"Okay NIMART is a very important program; it empowers nurses with HIV care and follow-up. I can say generally it empowers nurses with HIV care skills."(Clinic Manager, Urban Clinic 2)*

> *"The program is very capacitating for the nurses as the nurses are now able to offer ART, something which was only for the doctors."(Professional Nurse 1, Rural Clinic 1)*

3.5.2 Improved ART access

A significant number of doctors, professional nurses and clinic managers interviewed in both rural and urban clinics reported that the implementation of NIMART has significantly improved ART access.

> *"The benefits of NIMART are simple and straightforward. The number of patients taking ART has significantly increased since we have taken treatment close to the patient; access to ART is now easy." (Medical Doctor 3, Urban Clinic 3)*

> *"For a country like Swaziland, which is a resource limited country with few medical doctors, training of nurses to provide ART services is a big benefit for the patient. This means that the patient who needs ART can be initiated on time." (Clinic Manager1, Rural Clinic 1)*

3.5.3 Improved patient waiting times

In both rural and urban clinics the participants reported that the waiting time was significantly reduced since the inception of the NIMART program. Patients no longer had to wait for long periods for a doctor to attend to them since some cases are easily managed by the nurses:

"ART queues are actually shorter than they used to be as nurses are now providing the service, unlike before the patients would wait long hours for the doctor."(Professional Nurse 3, Rural Clinic 3)

"Patients who need ART are receiving it on time and are no longer waiting for a long time before they can start treatment."(Clinic Manager 3, Urban Clinic 3)

3.5.4 Economic benefits of the NIMART program

The NIMART program was perceived to be a cost effective intervention as it reduced costs in various ways by the clinic managers in urban clinics visited. For the country a lot of money was saved through early treatment of HIV positive patients thereby reducing the chances of hospital admissions. Secondly, it was cheaper to employ nurses as compared to doctors.

"It is also a big advantage for the country as the numbers of people admitted in hospitals are low because of ART, the bed occupancy rate is lowered and the country saves a lot of money which can be used for other purposes. It is cheaper to put someone on ART early than treat the opportunistic infections like TB, hence it's cost effective." (Clinic Manager, Urban Clinic2)

To support this the rural clinics felt that it was cheaper for patients to access ART services in their local communities as costs like transport would have been significantly reduced.

"On the side of the patients the cost of travel is reduced, in some cases no bus fare is needed as they can simply walk to the local health facilities."(Professional Nurse 1, Rural Clinic3)

3.5.5 Improved quality of care

One urban clinic manager felt that through the NIMART program, the quality of care to patients has improved since professional nurses spent more time with the patients and this gives them the opportunity to sufficiently explore patients' needs and problems as compared to doctors.

"Doctors may not have enough time to explore patients' social issues as much as we do. When patients come through, we interact more, we communicate better with patients than doctors and this adds to quality of patients care." (Clinic Manager, Urban Clinic 1)

3.5.6 Alleviation of shortage of doctors challenges

The NIMART program was reported to be very beneficial in terms of alleviating human resources shortages particularly of doctors. The shortage of doctors was worse as compared to that of nurses hence the task shifting of duties from doctors to nurses was welcome to both nurses and doctors. This was highlighted by one urban clinic manager who touched on health worker to patient ratios:

"I think NIMART is a good thing for the nation especially for 3rd world countries to adopt. The doctor/patient ratio is bad if we compare it to the nurses/patient ratio, you will see that nurses/patient ratio is higher. Doctors are highly skilled people whose skills are demanded everywhere."(Clinic Manager, Urban Clinic 1)

However some professional nurses in both rural and urban clinics felt that even though it was a good program in alleviating shortages of doctors, it also added work to the already strained nurses. Some felt that the task shifting program was in favour of the doctors.

"This program is good but it is making life for the doctors easier and at the expense of the nurses who continuously getting more tasks."(Professional Nurse1, Rural Clinic 3)

Having said so, some felt that it was fair for task shifting to be implemented across board with some nurses' duties being shifted down to lower cadres.

"Some tasks need to be shifted away from the nurses to lower cadres to reduce this work overload on nurses."(Professional Nurse 3, Urban Clinic 3)

3.5.7 Reduction in new HIV infections in children

Some clinic manager at a rural clinic and a nurse at the urban clinic felt that duet outcome factors like the improved Prevention of Mother to Child Transmission (PMTCT) program, the number of children contacting HIV from the HIV positive mothers at birth has significantly dropped.

> "*There are very few children who become positive these days because of PMTCT. The number of children on ART will be very low because of a drop in HIV infections in newborns."(Clinic Manager, Rural Clinic 2)*

> *"In special groups like pregnant women the mother to child transmission of HIV has dropped significantly because of PMTCT."(Professional Nurse, Urban Clinic 5)*

3.6 RECOMMENDATIONS BY RESPONDENTS ON WAYS TO IMPROVE NIMART IMPLEMENTATION

This section discusses some of the commonly raised recommendations by the respondents on how the NIMART implementation can be improved.

3.6.1 Improve training of nurses on ART

It was reported that the current training which is a once off training was insufficient to drive the NIMART program. More time was needed in the training program and more nurses need to be trained. Some providers felt that the training can be incorporated into the nursing curriculum. To add on to this it was reported that much emphasis be put on paediatric ART training as nurses were seen to lack in that area.

> ***"****They need to train a lot of nurses especially in paediatric ART and remove this fear that paediatric ART is a specialty."(Professional Nurse1, Urban Clinic 1)*

"All nurses in facilities regardless of departments should be given the opportunity for training. It is also a good idea to include ART training in the nursing curriculum such that training starts at college." (Medical Doctor, Rural Clinic 2)

"I think there should be more refresher courses to update the nurses' knowledge." (Professional Nurse 2, Urban Clinic 2)

3.6.2 Increase recruitment of nurses

Most professional nurses and clinic managers felt that there is need to enrol more nurses as this task shifting process has added more work to the already overworked nurses. Recruitment of more nurses would improve the implementation of NIMART.

"There is a shortage of nurses and more nurses are needed. Allocation of nurses to the facility must increase to decrease work overload." (Professional Nurse 2, Urban Clinic 2)

"If we talk of quality we need staff, for a nurse or a doctor to provide quality services we need enough staff to attend to people. There are long queues most of the time and nurses end up compromising quality for quantity. I encourage sponsors to employ more nurses and doctors." (Clinic Manager, Urban Clinic 3)

3.6.3 Provision of motivational incentives to the nurses

The majority of the interviewed professional nurses and clinic managers reported that motivation was needed for the nurses to continue providing quality services. This task shifting exercise basically added more roles to the nurses and motivational factors like remuneration, working conditions and allowances needed to be addressed.

"I think the program is doing very well, what we need is to continue motivating the nurses and encourage them to work harder. As you know, their salaries are low; the government needs to look into that."(Professional Nurse 2, Urban Clinic).

"As nurses we work very hard and now we are doing duties which were previously done by doctors and it is discouraging we continue to get low salaries, something has to be done seriously."(Professional Nurse, Rural Clinic 2)

3.6.4 Raise community awareness on HIV and AIDS

Finally the participants felt that the communities needed to be sensitized on the benefits of seeking antiretroviral treatment. Once community awareness is raised, the NIMART program can be implemented smoothly. It was believed that the community awareness program will educate communities on HIV and AIDS issues and once their knowledge levels increases, the stigma and misconceptions around HIV and AIDS could be addressed. Education of the parents and caregivers could improve ART intake in children as parents and caregivers can easily make sound informed decisions in the best interest of the children. Some of the suggested ways of community sensitization included electronic and paper media, community campaigns, and door to door meetings.

"I think we should improve community awareness through continuous sensitization and education on the benefits of early testing and treatment for HIV and AIDS. Most of them are not aware on the benefits of this program how it assists them and their children." (Clinic Manager, Rural Clinic)

"There should be distribution of pamphlets and posters to educate the general public about HIV and ART, this will also make the implementation of the NIMART program easy." (Professional Nurse 1, Urban Clinic 2)

CHAPTER 4: DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

4.1 Introduction

This chapter is a conversation about the research findings and other literature findings from different researchers around NIMART program. A discussion on the strengths and limitations of the study will follow and finally the conclusion of the study and recommendations are discussed.

4.2 Discussion

4.2.1 Perceptions on the implementation process NIMART

According to the study findings, the NIMART program was perceived to be very important in the provision of quality ART services and a worthwhile program to address human resources shortages particularly the shortage of doctors in rural and urban clinics that participated in this study. The medical doctors, professional nurses and clinic managers interviewed expressed satisfaction with the NIMART program and attributed its success to leadership of Ministry of Health of Swaziland and the existing partnership with nongovernmental organisations (NGOs) like PEPFAR, ICAP, and Baylor amongst others. It was reported that through the NIMART program, ART access improved at the selected clinics in Manzini Region, Swaziland. This concurred with the Global AIDS Response Progress Report [10] which noted that with the introduction of NIMART, nurses were capacitated to initiate ART and as a result, this increased the number of facilities offering ART services from 31 facilities in 2009 to 110 in 2010 [10]. Similarly, in South Africa, ART uptake significantly improved through the nurse initiated Streamlining Tasks and Roles to Expand Treatment and Care for HIV (STRETCH) intervention which combined nurse training with task shifting of diagnosis, initiation of treatment; follow up care of patients, integration of HIV care into the rest of the other services in the primary package of care [27]. In contrast to the later finding, limited access to healthcare facilities was mentioned by most rural professional nurses and clinic managers as barrier to ART uptake in children. Structural factors within the health system like human resources for health shortages, lack of physical facilities were mentioned

to negatively affect ART uptake in children in rural areas. This concurred with studies done in South Africa which found that the lack of capacity in the health system to provide ART to those who need it was limiting to disadvantaged groups who are not better informed, who stay far from treatment sites and of lower social economic status [49, 50].HRH challenges were reported by the rural professional nurses to be contributing to low ART coverage in children. In support of this some studies done in South Africa where human resource shortages of staff comfortable with managing general medical problems in children [51] were also seen to be a major contributor of low ART coverage in children.

4.2.2 Perceptions on the facilitators of the implementation of NIMART

Structural factors like the availability of ART treatment guidelines and ARV drugs in particular, adult regimens were reported to be the main facilitators in the NIMART program. A Swaziland Government Report stated that ever since it took over the responsibility of funding the ARV drugs between 2009 and 2010 there has not been any stock shortage despite it facing financial challenges thanks to the government's proactive planning and technical assistance from partners [9].Even though there has not been drug stock shortage, the paediatric ART regimen choices were still limited in the selected clinics as reported in the study findings and to a large extent this posed as a barrier to ART uptake in children. This could be because not all ARVs in the paediatric WHO guidelines are available in formulations best suitable in paediatric populations [52] and that the paediatric formulations are far more expensive than the adult formulations [46].

Interestingly the study established that process factors training of the nurses in ART care contributed to the success of the NIMART program. However, gaps were identified with regards to training and these included the short duration of the ART training, limited emphasis of paediatric ART in the training program, limited clinical mentoring and lack of continuous assessment of the trained nurses. Literature indicates that quality and safe task shifting relied on comprehensive training, mentoring and quality assurance [53, 54].

Other process factors like commitment, dedication and team work displayed by the professional nurses and doctors was reported to have contributed greatly to the success of the NIMART program. The willingness of the nurses to take extra responsibility and the confidence which the MoH of Swaziland had in the nurses was also mentioned to be

another major enabler of the NIMART program. These findings were consistent with studies done in sub-Saharan Africa which found that effective teamwork and mutual support were important factors in enabling successful implementation of NIMART [55]. Teamwork was seen to cause less disruption, stress and discontent in clinics implementing NIMART [55].The study reported commitment and dedication was seen amongst the nurses and doctors however in contrast the lack commitment and participation on the parents and caregivers part was reported to be a major barrier to ART uptake in children. Misconceptions and lack of knowledge by caregivers were some of the process factors reported to be a major contributors to low ART uptake in children but it is difficult to incorporate the possible characteristics that contribute to caregivers' lack of knowledge.

Even though the study did not explore patients' perceptions on the NIMART program, a large number of the professional nurses interviewed mentioned the willingness of the patients themselves to know their HIV status and their participation in taking their medication as one of the facilitators of the program. The patient participation was mainly reported in adult patients but it was opposite in children as their dependency on adults was mentioned as a major barrier to ART access. Patient participation is very important to any treatment compliance and literature states that encouragement from peers, perceived health benefits, hope and personal motivation are some of the motivating factors to patient compliance to ART [56].

4.2.3 Perceived barriers to ART coverage in children

Over the past decade, substantial evidence have been made to scale-up paediatric ART in resource limited settings and as of the end of 2012,approximately 630 000 children in low- and middle- income countries were receiving ART [57]. Despite this, data from 22 priority countries revealed that only one-third of those children in need are receiving ART as compared to 65% ART coverage in children [57].Similarly in the study most participants reported that ART coverage was low in both rural and urban clinics visited. Paediatric ART access continue to face challenges, amongst them difficulties in diagnosis, complex ART formulations, limited capacity of health providers to initiate ART in children and to provide follow up on those already on ART [58].In support of this the study also established that NIMART nurses find paediatric ART challenging as compared to adult ART, most professional

nurses interviewed mentioned that diagnosis of HIV, initiation and monitoring of ART in HIV positive children was complex and difficult.

Process factors like non adherence to ART is associated with disease progression and development of resistant strains to ART medications [59] thereby resulting in treatment failure. In HIV infected adults at least 95% adherence is required for best therapeutic outcomes [60].An observational study, Researching for Excellence in Adolescent Care and Health reported that 28.3% adherence to HAART regimen [61] and in other clinical trials of ART therapies in children and adolescents, adherence was 70% [61], however adherence in youth is still far below the recommended to sustain virologic control.
Even though the study did not assess adherence, it agreed with the literature that adherence was poor amongst HIV positive children. According to most of the interviewed health workers in the rural areas there was poor adherence to ART in HIV positive children under the age of 15 years. Most children were reported to be under the care elderly grandparents who did not understand issues around HIV and AIDS therefore leading to poor adherence. The majority of the grandmothers were reported to encounter difficulties when administering medications because of factors like poor vision, poor calculus [62] and in general poor knowledge on ART and this was supported by some studies which specifically pinpointed that elderly caregivers experience some challenges in dispensing accurate medications to children as it requires good vision and arithmetic skills [62].

The high level of poverty in rural communities visited was mentioned to hinder ART access especially in children. The little income which the families had was faced with competing demands to cover food, accommodation, transport and hospital expenses. Similar perceptions were noted in qualitative studies done in Uganda, Tanzania and Botswana which stated that food insecurity negatively affected ART intake as patients only took their ART once food is available as ART was seen to increase their appetite [63].

4.2.4 Perceived advantages and disadvantages of the NIMART program

To the majority of the professional nurses interviewed at the selected urban clinics, the NIMART program reported to be empowering them with more skills and their scope of practice was widened. Similar views were also shared from a study done in Lesotho, Malawi

and Swaziland which established that the program empowered nurses in their roles as they were able to establish stronger relationships with patients and caregivers resulting in greater influence over families and caregivers to initiate and adhere to ART services [43].In contrast, other professional nurses in the selected rural clinics perceived the NIMART program as a burden as it meant more work load to the nurses and this was also supported by literature which stated that the nurses were already overburdened with work [33,34]. The NIMART program was also reported to be contributing to poor service delivery in some less prioritised areas and this was in keeping with some literature which argued that shifting HIV care services to lower cadres could pose a risk of competition of priorities as other services can be neglected in the process [32].

However in our study, the NIMART program was regarded as reasonable as it was said to reduce costs on patients like transport as the ART services were brought to their local communities. For the Government of Swaziland, the NIMART program was reported to be economical as it was less expensive to pay nurses as compared to doctors but not necessarily meaning that the NIMART approach is a substitute of the human resource development specifically doctors. This concurred with some literature which warned that task shifting should not be used as a substitute to investment in health workforce training [31].

Aspects of quality of patient care like patient waiting time were reported in both rural and urban clinics visited to have improved as a result of the NIMART program and this was supported by literature elsewhere. Chung and colleagues reported that the nurse initiated ART for simple cases saved the doctor 45 minutes in every 1 hour worked by the NIMART nurse [25]. Patients with simple ART cases were no-longer waiting for the doctor like before hence the patient waiting time has been reduced significantly. Similar sentiments were shared from literature which states that there is promising evidence that decentralization and task shifting of ART services from doctors to nurses will provide the much needed solution to the shortage of doctors in many resource limited countries if carefully conceived and monitored [25].

4.3 Strengths and Limitations

The Donabedian conceptual model was relevant for this study as it is simple and ideal for exploring the facilitators and barriers of the NIMART implementation program by investigating issues around the structure, process and outcome [45]. However, the Donabedian conceptual model had some limitations in recognizing how the three domains interact with each other [64]. It was also difficult to draw connections between process and outcome considering that the study was conducted over a short time period. As such, it was impossible to conduct interviews with patients to strengthen the element of quality of care they received as well as the effectiveness of the NIMART program [66]. The position of the researcher as a doctor may have led to biased information from the participants as there was a possibility that the responses from the nurses and doctors may have been pressured considering that they were talking to a colleague. This limitation was avoided by excluding the clinics where the researcher worked from the study and by also adequately explaining to the participants that the purpose of the study was strictly for academic reasons and not to be used for other purposes. At the same time, the position of the researcher as someone who was not directly involved in the management of the participants may probably have opened up a platform for the participants to honestly communicate their perceptions and feelings.

The responses of some participants may have been biased due to lack of privacy. In some instances, the interviews were disrupted as there was limited space to conduct the interviews. The researcher had substantial previous experience in qualitative study as he had done and published a mixed method study on patient satisfaction in 2011. The study was published in the International Journal of Research and Management (IJRM).The researcher's professional role as a doctor was also very important in ensuring truthfulness, consistency and neutrality of the research findings as he had a full understanding on the NIMART program

4.4 Recommendations

4.4.1Recommendations related to Policymakers and Implementers

4.4.1.1 Consent for ART initiation in children

A change in policy related to age of consent for ART initiation in children is crucial. Therefore, the age of consent needs to be revised downwards to an age where the child has full understanding of his condition which is roughly around age 12. This will ensure that more children consent for themselves. On the other hand, only one parent or guardian should be allowed to consent for ART initiation in children instead of both parents and two guardians as currently practised.

4.4.1 2Training of nurses on ART

Our study has established that the two weeks training of nurses on ART was insufficient. Therefore, there is a need for NIMART training duration to be revised to at least 4 weeks and that more emphasis should be placed on paediatric ART. Frequent monitoring and follow-up refresher courses for nurses are also needed to ensure that the quality of NIMART implementation is maintained. These refresher courses need to focus on problematic areas which are found to be challenging by the NIMART nurses.

In addition, there is a need to increase the number of nurses receiving NIMART training with the aim of ensuring that all the nurses at any given facility are trained on NIMART. This could be achieved in the long-term through incorporating ART training into the nurses training curriculum.

4.4.1.3 Human resources

While task shifting has resulted in a number of doctor roles being shifted to the professional nurses, the unintended consequence of this is that it increased the workload of these professional nurses. Therefore, there is a need for some of the professional nurses' roles to be shifted to the lower cadres in order to reduce the impact of the high workload on professional nurses which has resulted in poor motivation ad high turnover.

The motivation of the nursing staff is also vital for any health program to be successful. As such, financial incentives, healthy working environment, personal recognition and appreciation as well as career development and management issues are some of the core factors of motivation [67] which can be used to motivate the health care providers involved in the NIMART program.

4.4.1.4 Health Education

There is a need for policy makers and implementers to increase community awareness and knowledge around HIV and AIDS issues through educational programs which can be rolled out through electronic and paper media as well as community meetings. This can definitely reduce the stigma and lack of knowledge around HIV and AIDS.

4.4.2Recommendations related to future research

4.4.2.1 Future Research

Future research could explore patients' perceptions of the NIMART program; this will provide useful information on the quality and effectiveness of the NIMART implementation from the recipients' perspective and will further strengthen the implementation of the program.

4.5 Conclusion

In conclusion, the findings of this study suggest that the NIMART program was perceived as an essential program to address human resource challenges, especially doctors and to improve ART services to the selected clinics in Manzini Region. According to the respondents in this study, task shifting of ART care from the doctors to the nurses contributed to ART scale up in adults; however its applicability in paediatric ART was perceived to be limited. Structural factors such as the availability of ART drugs and ART treatment guidelines were reported to be major facilitators of the NIMART implementation. In addition, process factors such as training of nurses on ART, and the dedication and team work of the involved nurses and doctors were also mentioned as facilitators. Barriers to ART

access in children under 15 years of age were reported to be poor social structures communities, children's dependency of on adults for their healthcare needs, poverty in communities and limitations related to the age of consent for ART initiation. Although the NIMART program was regarded to be empowering nurses, improving access to ART, reducing health care costs to patients and improving patient waiting times, it was also reported to be contributing to work overload on nurses. Particular attention is required to ensure that more nurses are trained on both paediatric and adult care. In order to improve their motivation, both financial and non-financial incentives should be considered. Task shifting of some duties from professional nurses to the lower cadres is also recommended to reduce burnout syndrome amongst these nurses. Furthermore, there is need to revise the policy around the age of consent for ART initiation in children and to introduce long-term educational HIV and AIDS programs in communities to reduce stigma and misconceptions around HIV and AIDS in communities.

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Appendix A: Interview Guide for In-depth Interviews with Nurses

EXPLORING PROVIDER'S PERCEPTIONS ON THE FACILITATORS AND BARRIERS TO IMPLEMENTATION OF NIMART SERVICES IN MANZINI DISTRICT

Introduction:

Structural Factors

1. Can you please tell me about your understanding of the NIMART program?

Possible prompts:

What are your views about NIMART program in your facility?

In your opinion are there **structures** in place for the implementation of NIMART in your health facility

- Probe for **Human resources for health (HRH)-nurses doctors, pharmacists, counselors***?*
- Probe for **health facilities availability of space**
- Probe for **medicines and medical equipment for ART**?
- Probe for **NIMART policies and guidelines**?

2. Do you have the NIMART guidelines in your facility? (ask to see a copy)

- To what extent do you refer to the NIMART guidelines when assisting patients with HIV? Please explain

Process Factors

3. What is your role and experience regarding the implementation of the NIMART program?

Possible prompts:

- Have long have your facility been implementing NIMART?
- How long have you need involved in its implementation in your facility?
- What are your day to day activities with regard to the implementation of NIMART in your facility?
- What systems are in place to assist you in doing this well?
- What systems are not in place that you think should be there?
- What are the reasons for these systems not being there?

4. Were you trained on the implementation of NIMART?

Possible Probes:

- Who offered training?
- How long was the training?

- What was covered in training?
- Was it a once off training or ongoing?

Outcome Factors

5. Can you please tell me more about your perceptions on the **successes to the NIMART implementation**?

- What do you think are the **successes** of the program if any?
- Probe issues on high ART coverage in adults
- Knowledge on NIMART amongst health workers and the public in general?
- What do you think are the **facilitators** to the success of the implementation of NIMART?
- Probe how was the **situation before the implementation** of this intervention?

6. In your opinion what factors do you think have led to **high ART coverage** in adults?

7 Can you please tell me more about your perceptions on the **failures to the NIMART implementation**?

- What do you think are the **failures** of the program if any?
- Probe issues on **ART coverage in children and adults knowledge on NIMRT amongst health workers and the public** in general?
- What do you think are the **barriers** to the implementation of NIMART?
- Probe **why** do you say so.

8. In your opinion what **can be done to improve NIMART** implementation?

- Probe what do you think could be done, in going forward **to strengthen the implementation of NIMART**?

9. Is there **anything more** you would like to add?

Thank you very much for giving me your insight and views on the facilitators and barriers to implementation of NIMART program. I will be more than happy to share my findings from the study with you.

Appendix B: In-depth Interview Guide for Doctors and Clinic Managers

EXPLORING PROVIDER'S PERCEPTIONS ON THE FACILITATORS AND BARRIERS TO IMPLEMENTATION OF NIMART SERVICES IN MANZINI DISTRICT

Introduction:

1. Can you please tell me about your, academic qualifications and current role and experience in the NIMART program?

Structural Factors

2. In your opinion are there **structures** in place for the implementation of NIMART in your health facility

- Probe for **Human resources for health (HRH)-nursesdoctors, pharmacists, counselors***?*
- Probe for**health facilities availability of space**
- Probefor **medicines and medical equipment for ART**?
- Probe for **NIMART policies and guidelines**?

Process Factors

3. In your opinion are there **processes** in place for implementation of NIMART in your health facility

- Probe for strategies **training of nurses on NIMART implementation**?
- Probe for **type, duration and frequency** of training?
- Probe for strategies **like sensitization of health workers and the public about NIMART**?

Outcome Factors

4. Can you please tell me more about your perceptions on the **successes to the NIMART implementation**?

- What do you think are the **successes** of the program if any?
- Probe issues on **ART coverage in adults, knowledge on NIMART amongst health workers and the publi**c in general?
- What do you think are the **facilitators** to the success of the implementation of NIMART?
- Probe what was the **situation before the implementation** of this intervention.

5. In your opinion what factors do you think have led to **high ART coverage** in adults?

6 Can you please tell me more about your perceptions on the **failures to the NIMART implementation**?

- What do you think are the **failures** of the program if any?
- Probe issues on **ART coverage in children and adults knowledge on NIMRT amongst health workers and the public** in general?
- What do you think are the **barriers** to the implementation of NIMART?
- Probe **why** do you say so.

7 Can you please tell me your perceptions on why there is **low ART coverage in children** under the age of 15 years of age?

8. In your opinion what **can be done to improve NIMART** implementation?

- Probe what do you think could be done, in going forward **to strengthen the implementation of NIMART**?

Conclusions

9. Is there **anything more** you would like to add?

Thank you very much for giving me your insight and views on the facilitators and barriers to implementation of NIMART program.

APPENDIX C: Information Sheet to the Study Participants

Exploring Provider's Perceptions on the Facilitators and Barriers to the Implementation of NIMART Services in Manzini Region, Swaziland

INFORMATION SHEET FOR IN-DEPTH INTERVIEWS WITH CLINICAL MANAGERS, DOCTORS AND NURSES

Introduction and purpose for the study

Hello and welcome! My name is Dr Innocent Ngwarati and I am a medical officer at Raleigh Fitkin Memorial Hospital (RFM). I am currently pursuing my studies in Master of Public Health (MPH) at the University of the Witwatersrand and I am working on my research project. The aim of the study is to explore provider's perceptions on the barriers and facilitators of NIMART implementation in Manzini Region, in Swaziland.

Confidentiality

Thank you once again for participating in the study. Please note that the information you provide will be regarded as confidential and feedback will be provided to you per request. Real names will not be used in the research; hence alias names will be used for confidentiality and privacy purposes.

Procedures involved in the study

You will be given a brief discussion on the study and an information letter is given to together with consent forms to fill in if you volunteer for the study. Then in-depth interviews will follow to those who consent for the study .Individuals are interviewed for further insight on perceptions on barriers and facilitators to NIMART implementation.

Recording the interview:

I would like to request your permission to audiotape the interview because I cannot write down all your answers quickly enough and might miss some important things that you will

say in response to some of the questions that you will be asked if I do not record them. It is essential for you to know that the tapes and notes will remain confidential and your identity will not be disclosed.

The tape will only be listened to by the researcher who will be working on the project. Tapes of interviews will be transcribed and transcripts of interviews will bear the code and not the name of the individuals interviewed. The information will then be analysed by the researcher who will organize it into a report. The tapes will be kept safely in a locked cabinet and will be destroyed two years after publication of the research findings.

Possible risks and benefits

Be advised that there are no foreseeable risks associated with participating in the study and there are no material benefits but however the project is beneficial that the information which you provide will be used to improve NIMART services.

Costs

There are no costs whatsoever on the participants for participating in the request.

Participants Rights

You are encouraged to participate freely and voluntarily. You can refuse to participate in the activity, stop at any time without giving any notice or reason.

Feedback

The findings of the research will be made available to the participants and the Ministry of Health. It is anticipated that the information collected will provide facility managers with useful recommendations to improve NIMART services in Manzini region.

Contact Details

Dr Innocent Ngwarati

Raleigh Fitkin Memorial Hospital

Box 14

Manzini M200

Swaziland

Tel: 0026876749254

Email ingwarati@gmail.com

Supervisor

Ms. Prudence Ditlopo

Centre for Health Policy; Private Bag X3, Wits, 2000

Tel: 011 717 3433 / 3420

Fax: 086 553 2930

Email: prudence.ditlopo@wits.ac.za

Should you wish, you may also contact the University of the Witwatersrand Human Research Ethics Committee; the contact people are: Mrs. AnisaKeshav, Room 10M07 Medical School, 10th Floor, Tel: 011-717-2700 OR ZaneleNdlovu, Room SH1005, 10th Floor Senate House, East Campus at 011-717-1252 Fax: 011-717-1265. Emails: **anisa.keshav@wits.ac.za**OR **zanele.ndlovu@wits.ac.za**

And also the Chairman Scientific and Ethics Committee Ministry of Health P. O. Box 5 Mbabane Telephone :(+268 404 2431) Fax: (+268 404 2092

Appendix D: Consent Form for In-depth Interviews with Clinic Managers, Doctors and Nurses

Exploring provider's perceptions on the facilitators and barriers to implementation of NARTIS services in Manzini Region, Swaziland

Consent Form for In-depth Interviews – Clinic Managers, Nurses, Doctors

I have been given the Information Sheet on the project entitled "**Exploring provider's perceptions on the facilitators and barriers to implementation of NIMART services in Manzini Region Swaziland in the year 2014**". I have read and understood the Information Sheet and all my questions have been answered satisfactorily.

I understand that it is up to me whether or not I would like to participate in the interview and that there will be no negative consequences if I decide not to participate. I also understand that I do not have to answer any questions that I am uncomfortable with and that I can stop the interview at any time. I understand that the researchers involved in this project will make every effort to ensure confidentiality and that my name will not be used in the study reports, and that comments that I make will not be reported back to anybody else.

I therefore consent voluntarily to participate in the study

Interviewee's signature: _____ Date: _____

Interviewer's signature: _____ Date: _____

Interviewer's name
(please print): _____ Date: _____

Appendix E: Consent Form for Tape Recording the Interview with Clinic Managers, Doctors and Nurses

Exploring provider's perceptions on the facilitators and barriers to implementation of NIMART services in Manzini Region, Swaziland

I have been given the Information Sheet on the project entitled "**Exploring provider's perceptions on the facilitators and barriers to implementation of NIMART services in Manzini Region Swaziland**". I have read and understood the Information Sheet and all my questions have been answered satisfactorily.

I understand that I can decide whether or not the interview should be tape-recorded and that there will be no consequences for me if I do not want the interview to be recorded.

I understand that information from the tapes will be transcribed and transcripts will be given a code and my name will not be mentioned. I understand that if the interview is tape-recorded, the tape will be destroyed two years after publication of the findings.

I understand that I can ask the person interviewing me to stop tape recording, and to stop the interview altogether, at anytime.

I consent voluntarily for the researcher to record the interview.

Interviewee's signature: _____ Date: _____

Interviewer's signature: _____ Date: _____

Interviewer's name
(please print): _____ Date: _____

APPENDIX F: Request Letter to Seek Approval for Conducting the Study

To: The chairman Swaziland Ethics Council (SEC) -Ministry of Health Swaziland)

Cc: The Clinic Managers (King Sobuza 2 Clinic, Lamvelase Clinic, FLAS Clinic, Wellness Centre clinic, St Theresa clinic, Mkhuzweni clinic, Lubombo clinic, Mafutseni clinic,)

From: Dr Innocent Ngwarati

Request for Approval to Conduct Research on Provider's Perceptions on the Facilitators and Barriers to Implementation of NIMART Services in Manzini Region, Swaziland

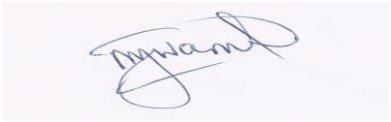
I am currently pursuing my Master of Public Health (MPH) degree (where). As part of this degree, I am expected to conduct research. I am conducting an explorative research on provider's perceptions of the facilitators and barriers to implementation of Nurse Initiated Management of Antiretroviral Treatment in Manzini Region.

The research will be done at 8 purposively selected facilities offering NIMART services. From these clinics, voluntary in-depth interviews will be done with nurses, doctors and clinic managers to assess their perceptions on the facilitators and barriers of NIMART implementation. There will be no direct benefits neither is there negative consequences to those who voluntarily participate in the study. The information gathered during my research will strictly be private and confidential and will the findings will be shared with the Department upon completion of the study.

I anticipate that the project will identify strengths and gaps in the system and complement the already existing efforts by the management to improve NIMART service delivery in theclinic.

Your permission will be highly appreciated.

Yours sincerely



Dr Innocent Ngwarati

Appendix G: University of the Witwatersrand Ethics Clearance Certificate

R14/49 Dr Innocent Ngwarati

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M131127

NAME: (Principal Investigator)	Dr Innocent Ngwarati
DEPARTMENT:	School of Public Health Health System Policy Manzini District, Swaziland
PROJECT TITLE:	Exploring Provider's Perceptions on the Facilitators and Barriers to the Implemetation of Nurse Initiated and Managed Anti-Retroviral Therapy Services in Manzini District, Swaziland
DATE CONSIDERED:	29/11/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Ms Prudence Ditlopo
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	24/01/2014

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 Secretary in Room 10004, 10th floor, Senate House, University.

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**

Principal Investigator Signature

Date 31/01/2014

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix H: Approval from the Swaziland Scientific and Ethics Committee

Telegrams:
Telex:
Telephone: (+268 404 2431)
Fax: (+268 404 2092

MINISTRY OF HEALTH
P.O. BOX 5
MBABANE
SWAZILAND

THE KINGDOM OF SWAZILAND

TO: **Dr. Innocent Ngwarati**
Principal Investigator

DATE: 11th June 2014

REF: MH/599C/ FWA 000 15267

RE: Exploring Provider's Perceptions on the Facilitators and Barriers to the Implementation of Nurse-led Anti-Retroviral Treatment Initiation Services in Manzini Region, Swaziland.

The committee thanks you for your submission to the Swaziland Scientific and Ethics Committee, an Expedited review was conducted.

In view of the importance of the evaluation and the fact that the evaluation is in accordance with ethical and scientific standards, the committee therefore grants you authority to conduct the evaluation. You are requested to adhere to the specific topic and inform the committee through the chairperson of any changes that might occur in the duration of the evaluation which are not in this present arrangement.
The committee requests that you ensure that you submit the findings of this evaluation (**Electronicand hard copy) and the data set** to the Secretariat of the SEC committee.
The committee further requests that you add the SEC Secretariat as a point of contact if there are any questions about the evaluation on 24047712/24045469.
The committee wishes you the best and is eagerly awaiting findings of the study to inform proper planning and programming to use for analysis

Sincerely,

Dr S.M.Zwane
PRINCIPAL SECRETARY
(THE CHAIRMAN)
cc: SEC members

MINISTRY OF HEALTH
PRINCIPAL SECRETARY
11 JUN 2014
P. O. BOX 5
MBABANE H100
SWAZILAND
SWAZILAND