EVALUATION OF ANTIRETROVIRAL THERAPY PROGRAM IN PRIMARY HEALTH CARE SETTINGS OF LESOTHO

by

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at the

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SUPERVISOR: PROF ZZ NKOSI

NOVEMBER 2016
DECLARATION

I declare that EVALUATION OF ANTIRETROVIRAL THERAPY PROGRAM IN PRIMARY HEALTH CARE SETTINGS OF LESOTHO is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

7 November 2016

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SIGNATURE
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EVALUATION OF ANTIRETROVIRAL THERAPY PROGRAM IN PRIMARY HEALTH CARE SETTINGS OF LESOTHO

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ABSTRACT

The purpose of this study was to evaluate the antiretroviral therapy program in primary health care settings in Lesotho. Mixed methods research using a convergent parallel mixed methods design was used to collect both quantitative and qualitative data which were analysed during the same phase of the research process. Two groups of participants participated in the study, the registered nurse group was composed of registered nurses/midwives/nurse clinicians involved in ART service provision and the second group was composed of adults aged 18 years and older who were HIV/AIDS positive.

Quantitative data had a compliance rate of 92% and it were analysed using SPSS (23). Qualitative data were analysed using constant comparison analysis and seven themes, fourteen categories and twenty two sub-categories emerged from the data analysis. Findings of the study revealed that the majority of PHC facilities were staffed by registered nurse midwives and nurse clinicians who were qualified, confident, knowledgeable and competent in the execution of duties. Generally there were a large number of patients that sought ART services which were offered on a weekly basis although there was variation in the actual number of days the services were provided. The time patients spent seeking ART services varied across the facilities and ARVs and other drugs were usually available. Challenges in the delivery of ART services included unsatisfactory staffing resulting in the provision of inadequate services and work overload, lack of knowledge of some patients, use of incentives by some partners and too many partners being involved in ART, inadequate documentary evidence and stigma pertaining to the HIV status of individuals. Furthermore, ARVs were reported to make patients feel hungry hence resulting in lack of satisfaction in ART services, ART services were inadequate due to dysfunctional equipment and some patients had been lost due to inability to screen for cancer and there was incomplete monitoring and
evaluation of the ART program. However, participants in this study generally showed their acknowledgement of the ART services as they generally improved their health status despite the many challenges that were being faced.

KEY CONCEPTS

Antiretroviral therapy; antiretroviral therapy program; evaluation; evaluation of HIV/AIDS; HIV/AIDS program; Lesotho; primary health care.
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- Special thank you to Rina Coetzer, for the technical editing of the thesis.
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Dedication

I dedicate this study to all the registered nurses who tirelessly work in resource limited settings to provide antiretroviral therapy. May their efforts be truly blessed!
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<td>Acquired Immune Deficiency Syndrome</td>
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<td>ANOVA</td>
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<td>Full Blood Count</td>
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<td>Family Planning</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HIV</td>
<td>Human Immuno-deficiency Virus</td>
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<td>Haemoglobin</td>
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<td>Integrated Regional Information Networks</td>
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<td>Millennium Challenge Corporation</td>
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<td>Niverapine</td>
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<td>Out-Patients Department</td>
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<td>Ribo Nucleic Acid</td>
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<td>Statistical Package for Social Sciences</td>
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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Lesotho is described as a small mountainous country situated in southern Africa and is completely surrounded by South Africa which is divided into 10 administrative districts with the capital city housed in the Maseru district (Ministry of Health and Social Welfare (MoHSW), Lesotho & ICF Macro 2009:1). Only 23% of the population live in urban areas, the annual population growth rate was 0.08% between 1996 and 2006, is primarily a country of subsistence farming, has an inflation rate estimated at 4.5% and an unemployment rate of 22.7% (MoHSW, Lesotho & ICF Macro 2009:1).

The HIV epidemic not only affects the health of individuals but also impacts on households, communities and the development and economic growth of nations and to make it worse countries hardest hit by the epidemic also suffer from other infectious diseases, food insecurity and other serious problems (UNAIDS 2016). According to the MoHSW, Lesotho and ICF Macro (2009:159), in Lesotho an estimated 24% of the adult population (15-49 years) is HIV positive and this makes Lesotho one of the worst HIV/AIDS affected countries in the world. Currently the prevalence of HIV amongst adults aged 15-49 is 25% and the difference between the two surveys is not statistically significant (Ministry of Health (MoH), Lesotho & ICF International 2014:235). It continues to have a negative effect on life expectancy and has reduced productivity, worsened household poverty, broken down family structures and increased the number of orphans and child-headed households. The epidemic remains generalized, affecting more males than females whilst incidence and AIDS related mortality have been slowly declining (Ministry of Health, Lesotho 2015:1)

Several HIV/AIDS programs have been implemented in an attempt to curb the pandemic including voluntary counselling and testing, mother-to-child transmission prevention, and antiretroviral (ART) therapy. Global efforts implemented to prevent HIV have seen reductions in prevalence rates in small but growing number of countries and new HIV infections are believed to be on the decline and the number of people with HIV receiving treatment in resource poor countries has dramatically increased in the past
decade (UNAIDS 2016). In Lesotho several HIV/AIDS programs have been implemented in an attempt to curb the pandemic including voluntary counseling and testing, ART therapy including mother-to-child transmission prevention. However Matsubayashi, Manabe, Kyegombe, Muganzi, Coutinho and Peters (2011:[1]) alluded to a lack of evidence on whether HIV/AIDS programs strengthen or actually distort the overall health services.

Literature on evaluation of HIV/AIDS programs in primary health care (PHC) settings remains limited in Lesotho. Furthermore lack of improvement in the HIV/AIDS prevalence rates in the five years between the two Lesotho Demographic and Health Surveys points to an urgent need to strengthen interventions (MoHSW, Lesotho & ICF Macro 2009:218). This study therefore seeks to evaluate the antiretroviral program in primary health care settings in Lesotho.

1.2 BACKGROUND

HIV/AIDS remains a major public health concern especially in sub-Saharan Africa where its prevalence is highest with over 19 million people living with the disease out of the 36.7 million people infected world-wide (Joint United Nations Program on HIV/AIDS (UNAIDS) 2015). Globally the pandemic has resulted in social and economic consequences including reduced life expectancy, reduced household income, increased number of orphans, increased health care demands and reduced labor availability. Of note is that Southern Africa remains the area most affected by the HIV epidemic and it is host to nine countries with the highest prevalence in the world, including Swaziland (25.9%), Botswana (25%), Lesotho (23.4%), Zimbabwe (18.1%), South Africa (16.9%), Zambia (14.3%) and Malawi (12.7%) (van Dyk 2013:7-8). Currently Lesotho has a prevalence of 25% amongst adults aged 15-49 years (MoH, Lesotho & ICF International 2014:235).

Lesotho is described as a lower middle income country with per capita Gross Domestic Product of US$2.448 billion in 2012 (World Bank 2013). The country has an estimated population of 2.1 million people and according to last United Nations (UN) estimates, the life expectancy at birth for both sexes was estimated to be 50.38 (World Population and Review 2016). Not only has the pandemic crippled government resources but has brought great challenges in the achievement of other development goals especially
improving maternal mortality, reducing child mortality and combating other diseases such as Tuberculosis.

The World Health Organization (WHO) (2011:23) explained that it developed a global strategy which has two components for preventing and assessing HIV drug resistance and includes:

- Monitoring of program performance to identify and minimise any events associated with the development of drug resistance including poor adherence, stock outs, prescription of inappropriate medicines and errors in dispensing.
- Surveillance of resistance among people newly infected with the virus and those receiving antiretroviral therapy.

The government of Lesotho implemented antiretroviral therapy in 2001 and the free antiretroviral therapy program only started in November 2004 (WHO, Joint United Nations Program on HIV/AIDS, United Nations Children’s Fund 2005). Notable successes in antiretroviral treatment is that Lesotho is one of the few countries that permitted initiation of ART by registered nurses owing to the scarcity of Medical Doctors, a move that has seen a great increase of the coverage of ART. According to Labhardt, Keiser, Sello, Lejone, Pfeiffer, Davies, Egger, Ehmer and Wandeler (2013:[2]), “in response to severe staff shortages, Lesotho published national guidelines and started to implement a nurse-based model to decentralise and scale-up ART provision”. Yibbeltal, Abiyou, Betru, Damen, Marie-Laga and Wim (2012:24) also explained that the use of mid- and low-level cadres as substitutes for physicians to improve access to and sustainability of health services in rural and peri-urban communities in Ethiopia.

However, literature on the evaluation of the ART program remains limited in Lesotho. Help Lesotho (2014) reiterated a challenge in the reporting of statistics of location. In a report by Integrated Regional Information Networks (IRIN) in the Guardian newspaper (2011:[1]) a set-back in the provision of ART in Lesotho has been huge shortages of health care staff with only a total 89 doctors for the whole population, of which 80% were from other African countries. Furthermore, most health care professionals were reported to often travel abroad to seek higher wages leaving a shortage of trained staff in the country (IRIN in Guardian Newspaper 2011:[1]). Barnighausen, Bloom and
Humair (2010: 951) reported that ART programs in many developing countries are commonly supported by aid organizations that offer higher salaries than local levels and facilitate collaborations with renowned academic institutions hence the possibility that most physicians and nurses working in ART programs in sub-Saharan Africa probably emigrated from other regions. Anecdotal evidence suggests that patients have also been found to change the packaging of their ARVs and each time on subsequent visits most patients present their ARVs in plastic packets and not plastic bottles initially dispensed in. Furthermore subjective evidence suggests that emigration has also resulted in most patients’ refills being taken by an immediate or close relative or care supporter and the daunting question in the researcher’s mind is whether the medicines eventually do get to the patients most of whom work in neighbouring South Africa and only come back home over the long Christmas break.

It is in light of the above that this study aims to evaluate the antiretroviral program in the primary health care setting. Due to the lack of evidence on the successes or challenges in the implementation of the ART program this study will provide information on this program in three districts of Lesotho. The researcher believes the evaluation tool used in this study can be used to assess the antiretroviral therapy program and the results might be used to improve the program nationally.

1.3 RESEARCH PROBLEM

Many programs and processes targeted towards the reduction of HIV/AIDS in Lesotho have been implemented in the past decade including the antiretroviral program. It is true that the antiretroviral program has seen a great improvement in the lives of many people who are both infected and affected by HIV/AIDS including a reduction in mortality due to the condition. Anecdotal evidence suggests various challenges in the implementation of the program with patients unable to go through complete blood testing when collecting their drug supplies, long queues whilst waiting for services, failure for individual patients to collect their medications due to employment commitments, tedious paper work during the provision of services and staff overload due to inadequate human resource allocations. Furthermore since implementation of ART in 2004, literature and evidence on the successes, challenges and/or improvement plans in the implementation processes of antiretroviral program in PHC settings of Lesotho remains limited. This study therefore sought to evaluate the antiretroviral
program in the primary health care setting of Lesotho with emphasis on implementation processes employed to propagate the program.

1.4 PURPOSE OF THE STUDY

1.4.1 Research purpose

Creswell and Plano Clark (2011:153) explain that a mixed method purpose statement reflects the overall purpose of the mixed method study, and it includes the intent of the study, type of mixed method design, quantitative and qualitative purpose statements, and the reasons for collecting both quantitative and qualitative data. According to Polit and Beck (2012:317), evaluation research has a focus on developing information needed by decision makers about whether to adopt, modify and/or abandon a program, practice, procedure or policy. Babbie and Mouton (2002:341) explained that questions raised in this type of research include; is the program being implemented as planned?, does the program serve the target population?, are services being provided as initially planned?, is program management and infrastructure in place to support program implementation?

The purpose of this study was to evaluate the antiretroviral therapy program in the Primary Health Care setting in Lesotho and develop an evaluation tool that can be used to evaluate the ART program. A convergent parallel mixed methods design was used to conduct a process evaluation for the ART program. This is a type of design in which both quantitative and qualitative data are collected and analysed during the same phase of the research process and merging of the two sets of results occurs into an overall interpretation (Creswell & Plano Clark 2011:79). In this study quantitative data was used to describe the ART program in the PHC setting. Qualitative data was used to explore and describe experiences of both health care providers and patients on the ART program in the PHC setting. Both sets of data were used to bring a greater and comprehensive assessment of the antiretroviral therapy program and its evaluation thereof. This was important as each data set offset the weaknesses of the other and allowed the researcher to collect as much evidence as possible as either approaches used independently.
1.4.2 Research objectives

There were four objectives for the quantitative aspect of the study.

- Describe ART services offered in PHC settings
- Determine if staffing patterns had an association with
  - number of days ART services were offered
  - number of days PMTCT services were offered
  - number of patients seen
  - time spent by patients seeking ART services at the facility
  - time taken by a patient to consult a registered nurse midwife/clinician

There were two objectives for the qualitative aspect of the study.

- Explore and describe experiences and views of registered nurse midwives/clinicians on the ART program in the PHC settings
- Explore and describe experiences and views of patients on the ART program in the PHC settings

The final objective was to develop an evaluation tool that can be used to assess the ART program.

1.4.3 Research questions

The study question was:

- To what extent do quantitative and qualitative results converge in the evaluation of the ART program in the primary health care setting of Lesotho?

It was supported by two pertinent questions which are:

- What is the ART program in the Primary Health Care setting of Lesotho?
- What are the experiences and views of both registered nurse midwives/clinicians on the ART program in the primary health care setting of Lesotho?
What are the experiences and views of patients on the ART program in the primary health care setting of Lesotho?

1.5 SIGNIFICANCE OF THE STUDY

This study will generate new information on the ART program, its successes and challenges. The study will benefit: policy makers to improve the processes involved in the antiretroviral program; Implementing partners currently assisting in the propagation of the ART program to be able to understand the actual impact their assistance has during the provision of services; patients to be able to receive faster and more effective services; health care workers, especially registered nurses, to be able to plan the execution of the antiretroviral therapy program in their health clinics effectively. The researcher believes the evaluation tool used to assess the ART program can be used to inform planning at each health clinic in each district and eventually the nation as a whole. This study is therefore exploratory to potential subsequent studies that focus on implementation strategies such as the use of electronic patient record and accessibility of services regardless of place of origin that could result in a more effective and efficient program.

1.6 DEFINITION OF TERMS

This section presents conceptual and operational definitions of concepts used in this study.

1.6.1 Conceptual definitions

Evaluation – A process of accountability and assessment of whether objectives are met or planned activities are achieved. (Stanhope & Lancaster 2012:550).

Antiretroviral therapy – “Drugs which suppress or prevent the replication of HIV in cells” (Van Dyk 2010:490).

Program – “An organised approach to meet the assessed needs of individuals, families, groups, populations or communities by reducing the effect of or eliminating one or more health problems” (Stanhope & Lancaster 2012:549).
**Primary health care** – “Essential health care that is based on scientifically sound and socially acceptable methods and technology, which make universal health care accessible to all individuals and families in a community. It is through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process.” (WHO1978).

**Setting** – “The physical location and conditions in which data collection take place” (Polit & Beck 2012:743).

Nurse Clinician – a registered nurse with at least a masters degree or advanced education in the primary care of particular groups of clients and is capable of indepent practice in a variety of settings (Stegman 2006: 1348)

1.6.2 Operational definitions

**Evaluation** is an assessment of how well the ART program in Lesotho is working.

**Antiretroviral therapy** – Drugs designed to stop the HIV virus from damaging the human body and dispensed to patients in Lesotho.

**Program** is a plan of action being implemented to combat HIV/AIDS in Lesotho.

**Antiretroviral program** is a plan of action designed to stop the HIV virus from damaging the human body.

**Primary health care** is essential health targeted towards the provision of basic services to individuals, families, communities or groups including antiretroviral therapy that is affordable and accessible for the recipients of care and the government of Lesotho.
Primary health care setting refers to health clinics in Lesotho at which primary health care services are offered specifically antiretroviral services and in which the researcher is going to collect data.

Nurse clinician – refers to a registered nurse midwife who has completed additional education which prepares them independently provide treatment and care services without direct supervision of doctors.

1.7 THEORETICAL FOUNDATIONS OF THE STUDY

1.7.1 Methodological Assumptions

Evaluation research is defined by Polit and Beck (2012:726) as research which assesses how well a program, practice or policy is working whereas Babbie and Mouton (2002: 335) explain that evaluation research is a field of applied social science which utilizes a range of social science methods in assessing social intervention programs. Neuman (2003: 534) defined evaluation research as a type of applied research in which one tries to determine how well a program or policy is working or reaching its goals and objectives.

De Vos et al (2011:452) further explained the purpose of evaluation research to be the ‘intended use of the evaluation activity, namely gathering information for improving the design, development, formation and implementation of a program (formative evaluation); describing the process of a program as it is being developed (process evaluation); or assessing the impact, outcome or worth of a program (summative evaluation). Babbie and Mouton (2002: 337) explained that program evaluations have purposes of program management, improvement and refinement, financial accountability, on public demand, to meet accreditation requirements and quality assurance and control. Terre Blanche, Durrheim and Painter (2006: 411) also explained that purposes of evaluation research focus on theories of change, implicit in social programs and to analyze ways in which those involved in social work go about their work, issues dealt with and the manner in which such issues are dealt with.

Babbie and Mouton (2002:345-346) used the terms process implementation, implementation evaluation and program monitoring interchangeably. Polit and Beck
(2012:261) explained that ‘process analysis involves an in-depth examination of the program involving a collection of both qualitative and quantitative data. Neuman (2003: 527) also reiterated that evaluation researchers can include qualitative data and quantitative data as part of program evaluation with operationalized objectives that have multiple qualitative and quantitative indicators. According to Patton (2002:159) process evaluations are aimed at elucidating and understanding internal dynamics of how a program, organization or relationship operates and. Qualitative inquiry is understood as appropriate for studying process because depicting process requires detailed descriptions of how people engage with each other, the experience of process varies for different people so their experiences must be captured in their own words, process is fluid and dynamic and cannot be fully summarized on a single rating scale at one point in time and participants perceptions are a key process consideration (Patton 2002:159).

Process evaluation, using mixed methods research, of the ART program in PHC settings of Lesotho was conducted and both qualitative and quantitative data was collected. The following section further describes the design used in conducting process evaluation of the ART program.

1.7.2 Research paradigm

Neuman (2003:70) explained that a paradigm is a basic orientation to research and theory and includes basic assumptions, important questions to be answered and research techniques to be used. Crotty (2010: 35) stated that a paradigm is the matrix that shapes the reality to be studied and establishes parameters and sets boundaries for scientific research and, in the ordinary course of events scientific inquiry is carried out strictly in line with it.

Polit and Beck (2008:14) describe a paradigm as a world view and general perspective on the complexities of the real world and include the positivist and naturalist paradigms. The positivist paradigm (logical positivism) is explained as a reflection of a broader cultural phenomenon (modernism) that emphasises the rationale and the scientific and is used in quantitative inquiry (Polit & Beck 2008: 14-16) or as being linked to empirical science and adheres to a philosophy of science that attributes a radical unity to all sciences (Crotty 2010: 27). The naturalistic paradigm is one that views reality as not a fixed entity but rather a construction of individuals participating in the research, reality
exists within a context and many constructions are possible and it is mainly used in qualitative inquiry (Polit & Beck 2008:16). The constructionist view involves construction of meaning by human beings as they engage with the world they are interpreting (Crotty 2010: 42-43).

This study used mixed methods research in which both quantitative and qualitative data was collected. Polit and Beck (2008:758) explain mixed methods research to be research in which both qualitative and quantitative data are collected and analysed. Johnson, Onwuegbuzie and Turner (2007:120) describe mixed methods as research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or set of related studies. According to Creswell and Plano Clark (2011:5), mixed methods is a research design with philosophical assumptions as well as methods of inquiry that guide the direction of the collections and analysis and the mixture of qualitative and quantitative approaches in many phases of the research process. As a method it focuses on collecting, analysing and mixing both quantitative and qualitative data in a single study or series of studies. The use of quantitative and qualitative approaches, in combination, provides a better understanding of the research problems than either approach alone. The authors further explain that mixed methods is a stance taken by the researcher that provides direction for the many phases of the mixed methods project using an explanatory framework from the social sciences that predicts and shapes the direction of the research study (Creswell & Plano Clark 2011:47).

In this study mixed methods research was used in the evaluation of the ART program and the paradigm is known as pragmatism. Crotty (2010: 72) explains that pragmatism evolved from symbolic interactionism and is an uncritical exploration of cultural ideas and values in terms of their practical outcomes. Culture and experience are understood to be interchangeable terms as seeking the meaning of experience is actually an exploration of culture and the view of culture and society adopted by pragmatism is optimistic and progressivist (Crotty 2010: 74). The study of original meaning and influence of symbols and shared meaning can shed light on that which is important to people, that which will be most resistant to change, and that which is most likely to change if the program is to move in a new direction (Patton 2002: 113). As explained by Creswell and Plano-Clark (2011:42) pragmatism involves single and multiple realities, practicality, multiple stances, combining both qualitative and quantitative data and
researchers can employ formal or informal writing styles. The authors further explained that the focus of pragmatism is on the consequences of research and on the use of multiple methods for data collection to inform the problem under study (Creswell & Plano-Clark 2011:41).

Onwuegbuzie and Johnson (2004: 18) provided characteristics of pragmatism which clearly delineate it from other paradigms. Pragmatism;

- Finds a middle ground between philosophical dogmatics and skepticism and finds a workable solution to many longstanding philosophical dualisms about which agreement has not been historically forthcoming.
- Rejects traditional dualisms and prefers more moderate and common sense versions of philosophical dualisms based on how well they work solving problems.
- Recognizes the existence and importance of the natural world as well as the emergent social and psychological world that includes language, culture, human institutions.
- Places high regard for the reality of and influence of the inner world of human experience in action.
- Views knowledge as being both constructed and based on the reality of the world we experience and live in.
- Replaces the historically popular epistemic distinction between subject and external object with the naturalistic and process oriented organism-environment transaction.
- Endorses fallibilism in which current beliefs and research conclusions are rarely if ever viewed as perfect, certain or absolute.
- Justification comes in the form of what Dewey called “warranted assert ability”.
- As explained by Pierce, "reasoning should not form a chain which is no stronger than in weakest link, but a cable whose fibers may be ever so slender, provided they are numerous and intimately connected”.
- Theories become true to different degrees based on how well they currently work and judged especially on the criteria of predictability and applicability.
- Endorses eclecticism and pluralism in which conflicting theories and perspectives can be useful and observation, experience and experiments are all useful ways to gain an understanding of people and the world.
- Views human inquiry as analogous to experimental and scientific inquiry.
- Endorses a strong and practical empiricism as a path to determine what works.
- Views current truth, meaning and knowledge as tentative and changing over time.
- Understands ‘truth’ to be given through experience and experimenting.
- View instrumental truths as a matter of degree as some estimates are truer than others.
- Prefers action to philosophizing and is therefore anti-philosophy.
- Takes a value oriented approach to research that is derived from cultural values, endorses shared valued such as democracy, freedom, equality and progress.
- Endorses practical theory that informs effective practice; praxis.
- Explains that organisms constantly adapt to new situations and environments.
- Generally rejects reductionism of culture, thoughts and beliefs.
- Offers the pragmatic method for solving traditional philosophical dualisms as well as for making methodological choices.

The researcher provided multiple realities and collected data using methods that best suited the research questions and used inductive and deductive reasoning by collecting both qualitative and quantitative data. Quantitative data assisted the researcher to describe the antiretroviral therapy program currently being implemented whereas the qualitative data was used to describe the experiences of both health care providers and patients on the program. The researcher believes both sets of data combined enhanced greater understanding of the ART program in the primary health care setting of Lesotho and its evaluation. The mixed methods design allowed the researcher to address a range of confirmatory and exploratory questions and for stronger inferences. Use of both quantitative and qualitative data sets allowed a combination of inductive and deductive reasoning and enhanced greater confidence in the results obtained.
1.7.3 Theoretical framework

According to Polit and Beck (2008:142), a theoretical foundation provides a context or rationale for the parameters or boundaries of a study. The Intervention Wheel Framework, Instrument Development Construction Validation framework and a Conceptual framework of Social Programs were used to provide parameters for this study.

1.7.3.1 Intervention wheel framework

In this study the intervention wheel framework was used to provide a rationale for the boundaries of the study. As described in Stanhope and Lancaster (2012:188-213), the intervention wheel is a population based public health model that originated from a grounded theory process carried out by public health nurse consultants at the Minnesota Department of Health in the mid-1990s. The authors further explain that the model has three basic components:

Component one explains that the model is population based and identifies populations of interest or at risk through an assessment of community health status and an assignment of priorities (Stanhope & Lancaster 2012:195). In this study the population of interest are HIV/AIDS positive individuals enrolled in the antiretroviral therapy program and registered nurses involved in the provision of ART services.

Component two explains that the model encompasses three levels of practice including communities, individuals and families that comprise communities, and the systems that impact the health of communities and the interventions at each level of practice contribute to the overall goal of improving population health (Stanhope & Lancaster 2012:196). The researcher ascertained the level of interaction of professional nurses with communities, individuals and families that comprise communities and the systems that impact the health of communities during the provision of ART services.

Component three identifies and defines 17 public health interventions which encompass the intervention wheel and are applicable at all three levels of practice. In this study the researcher used 14 interventions of the wheel framework to describe the antiretroviral therapy program and they are described below:
• Surveillance in which the registered nurses monitor health events through on-going and systematic collection, analysis and interpretation of health data for the purpose of planning, implementing and evaluating the antiretroviral therapy program.
• Screening in which the registered nurses identify individuals with undiagnosed HIV/AIDS.
• Case finding in which registered nurses locate individuals and families infected or affected by HIV/AIDS and connects them with the health care facility.
• Case management in which the registered nurses optimise self-care capabilities of individuals infected by HIV/AIDS and use the health system and communities to coordinate and provide the relevant services.
• Consultation in which the registered nurse seeks information and generates optimal solutions to problems or issues regarding HIV/AIDS with the community, system, family or individual who select and act on the option best meeting their circumstance.
• Referral and follow-up in which the registered nurse assists individuals, families or groups, organisations or communities infected or affected by HIV/AIDS to identify and access necessary resources at the health facility in order to prevent or resolve problems or concerns.
• Health Teaching in which the registered nurse communicates facts, ideas and skills that change knowledge, attitudes, values, beliefs, behaviours and practices of individuals, families, systems and communities towards HIV/AIDS
• Counselling in which the registered nurse carries out voluntary counselling and testing to establish an interpersonal relationship with a community, system, family or individual intended to increase or enhance their self-care and coping with HIV/AIDS.
• Outreach in which the registered nurse locates populations of interest or at risk of HIV/AIDS and provides information on what can be done and how services targeted towards the condition can be obtained.
• Disease and other health investigation in which the registered nurse systematically gathers and analyses data on HIV/AIDS and how it threatens the health of populations and determines its control measures.
Collaboration in which the nurse works together with other organisations to achieve a common goal enhancing capacity to promote and protect health amongst HIV positive individuals.

Coalition in which the nurse promotes and develops alliances amongst organisations building linkages, solving problems and enhancing local leadership to address health concerns amongst HIV positive patients.

Community organising in which the nurses assists community groups to identify common goals or problems, mobilises resources and develops and implements strategies for reaching the goals regarding the ART program.

Advocacy in which the nurse acts on behalf of patients focusing on developing the HIV/AIDS capacity of the community, system, individual or family to act on their own behalf.

17 Public health interventions

![Intervention wheel framework](Source: Henry Street Consortium Online [s.a.])
1.7.3.2 Instrument Development Construction Validation framework

In this study the Instrument Development Construction Validation (IDCV) framework was used as a guide to develop the quantitative data collection tool and it is further discussed in chapters 3 and 4.

Onwuegbuzie, Bustamante and Nelson (2010:56) provided an Instrument Development Construct Validation (IDCV) process for optimizing the development of the quantitative instrument. The authors presented crossover analyses as a key mechanism for IDCV and it is the highest form of combining quantitative and qualitative data collection techniques as the researcher make use of Gestalt switches (Kuhn 1962) from a qualitative lens to a quantitative lens and vice versa (Onwuegbuzie et al 2010:58). The process of IDCV is understood to involve both inductive and deductive reasoning. This use of abductive logic, intersubjectivity, and emic–etic perspectives makes the use of mixed research in general and crossover analyses in particular very appealing for instrument development and construct validation and they are confirmed by through criterion related, content related and construct related validity (Onwuegbuzie et al 2010:58-59).

The following IDCV processes were used in the development of the quantitative data collection tool;

- **Construct conceptualization**
  This phase involves the researcher being aware of their own personal belief systems related to three dimensions of belief systems: (a) overall worldview, (b) research philosophy, and (c) discipline-specific philosophy enabling the researcher to develop the construct of interest (Onwuegbuzie et al 2010:62).

- **Identification and description of behaviors that underlie the construct**
  This phase involves the researcher repeatedly gathering and analyzing information from literature review, local experts and key informants until data saturation is reached to allow identification of behaviors underlying the construct of interest (Onwuegbuzie et al 2010: 63-64).
• **Development of initial instrument**
In this phase the researcher develops a table of specifications that links theory extracted from phase 1 and information provided by local experts and key informants and must include open ended items asking field testing participants to assess the quality of each item and offer suggestions for improvement (Onwuegbuzie et al 2010: 64).

• **Field test of initial instrument**
The initial instrument is subjected to a field test during which each item is assessed for clarity, aesthetics, relevancy, tone, length of time needed for a response and cultural competence and focus should be on content-related validity and construct related validity (Onwuegbuzie et al 2010: 64).

• **Design and field test revised instrument**
The researcher having refined the initial instrument, subjects it to a larger sample for a more extensive field test, collecting both qualitative and quantitative data which will be correlated or compared (Onwuegbuzie et al 2010: 65).

• **Validation of revised instrument**
Initially quantitative analysis is conducted to assess the instrument for content-related validity, criterion-related validity and construct validity. Qualitative analysis is secondly conducted to explain whether qualitative and quantitative data is mixed either to achieve triangulation, complementarity, development, initiation or expansion. The researcher also conducts a qualitative dominant crossover analysis using steps of integrated data reduction, integrated data display, data transformation, data correlation, data consolidation, data comparison, warranted assertion analysis and data importation. Quantitative dominant crossover analysis is also conducted and involves correlation of emergent themes from the qualitative crossover analysis with scores extracted from the quantitative analysis phase (Onwuegbuzie et al 2010: 65-67). All these crossover analysis techniques involve some level of abductive logic, which involves moving back and forth between inductive and deductive logic. These crossover analysis procedures also involve a form of intersubjectivity (agreement about reality, ultimately, is socially constructed) and involve incorporation of both insiders’ (i.e., emic) views and the researcher-observer’s (i.e., etic) views for instrument development and construct validation and that the balance between the emic perspectives (stemming from the
participants involved in the instrument development and/or construct validation) and etic perspectives (e.g., stemming from extant theories and the researcher’s a priori assumptions) is appropriate such that quality meta-inferences can be made (Onwuegbuzie et al 2010:58-59).

- **Evaluation of the Instrument Development Construct evaluation process and product**

This final phase involves the researcher reflecting on the IDCV process to discover their feelings of the process to determine useful data collection and analytical strategies and uncover areas of further growth and development of the instrument.

**1.7.3.3 Conceptual Model of Social Programs**

Babbie and Mouton (2002: 342-345) provided a conceptual framework for social programs which are described as structured interventions or actions aimed at changing something in the social world for the better. These interventions are understood to differ in terms of scope, complexity, domain application and time frame and have the following characteristics; clearly defined goals and objectives, intended beneficiaries, explicit measures of success, program components, management and implementation system, human resource base, stakeholders that have a direct or indirect interest in the program and a context or setting for the program (Babbie & Mouton 2002: 342-343). Figure 1.2 below shows linkages between these dimensions.
The conceptual framework by Babbie and Mouton (2002:342-345) shows that there is a relationship between the program goals (I) and the target group (II) as a program is designed to address the needs of the target group. The goals (I) of the program must be operationalised into measurable outcomes (III) Program components (IV) are the actual mechanisms and means the implementation leads to the attainment of the stated objectives. The program management system (V) comprises all the systems required to implement and manage a program including administrative (records and filing), monitoring (keeping track of program participants) and information (financial). The human resource base (VI) refers to individuals managing the program in light of their
competencies in effective and efficient program management, organisational structures in large scale programs and personality styles suited to program management. Stakeholders (VII) include founders or sponsors of a program, the general public and other competing service providers such as non-governmental organisations. The context (VIII) includes the broader socio-political context, specific geographical location or setting and the time frame which determines the success of an intervention (Babbie & Mouton 2002:343-345).

1.8 RESEARCH DESIGN AND METHOD

1.8.1 Research design

The research design is defined by Polit and Beck (2008:765) as a plan for addressing the research question and specifications for enhancing the study’s integrity. This study used the convergent parallel design. As stated by Creswell and Plano Clark (2011:77) this design is also referred to as parallel study, convergence model, and concurrent triangulation. It is explained as a design used to collect and analyse both quantitative and qualitative data during the same phase of the research process and then merging the two sets of results into an overall interpretation (Creswell & Plano Clark 2011:77). Creswell (2003:214-217) provides a visual model of the concurrent triangulation strategy in which the researcher uses two different methods in an attempt to confirm, cross validate or corroborate findings within a single study.

![Visual Model of Concurrent Triangulation](image)

**Figure 1.3a: Visual Model of Concurrent Triangulation**
(Creswell 2003: 214)
Johnson et al (2007:123-124) also provided a visual model of types of mixed methods research and it shows that the researcher makes a starting point the logic of mixed methods research and the researcher believes that qualitative and quantitative approaches will add insights as their research questions are considered.

![Mixed methods Research Paradigms](image)

**Figure 1.3b: Graphic of the three major research paradigms including subtypes of mixed methods research**

*(Johnson et al 2007:124)*

The quantitative and qualitative data were collected and analysed separately, the results combined/integrated to bring an overall description into the evaluation of the ART program and both methods of data collection were given equal status.

### 1.8.2 Population

The *population* included health care professionals working in Lesotho; and all individuals who seek health care in the PHC settings of Lesotho.
The target population included registered nurses/midwives/clinicians providing ART services in PHC settings in Lesotho; and all individuals who were HIV positive and sought ART services in PHC settings in Lesotho.

Sampling frame included human resource registers of registered nurses working at PHC settings in Lesotho.

Accessible population included registered nurses/midwives/clinicians providing ART services in PHC settings of Lesotho who were available at the time of the study and all individuals who were HIV/AIDS positive and sought ART services in PHC settings of Lesotho and were available at the time of the study.

Inclusion criteria were registered nurses employed in the health clinics providing primary health care services and available at the time of the study were included in the study. Adults aged 18 years and older who were HIV/AIDS positive, could speak either Sesotho and/or English and were able to give consent and available at the time of the study were included in this study.

1.8.3 Data collection instruments

Data collection instruments are itemised formal written documents that are used to collect and record information (Polit & Beck 2012:191). Babbie and Mouton (2002:646) defined a questionnaire as a document containing questions and other types of items designed to solicit information on appropriate analysis and are used in surveys, experiments, field research and other modes of observation.

Onwuegbuzie et al (2010:56) provided an Instrument Development Construct Validation (IDCV) process for optimizing the development of the quantitative instrument. The authors presented crossover analyses as a key mechanism for IDCV and it is the highest form of combining quantitative and qualitative data collection techniques as the researcher make use of Gestalt switches (Kuhn 1962) from a qualitative lens to a quantitative lens and vice versa (Onwuegbuzie et al 2010:58). The researcher used the process of construct conceptualization which involves the researcher being aware of their own personal belief systems related to three dimensions of belief systems: (a) overall worldview, (b) research philosophy, and (c) discipline-specific philosophy.
This was achieved through literature review on the ART program and use of the Intervention Wheel Framework as guides in the development of the tool and 14 interventions were incorporated. The interventions included surveillance, screening, case finding, case management, consultation, referral and follow-up, health teaching, counselling, outreach, disease and other health investigation, collaboration, coalition, community organising and advocacy. Local experts were also engaged during the research process and they included a statistician.

In the quantitative strand of the study the researcher developed and used a structured self-report questionnaire with both open- and closed-ended questions (see Appendix 1). Some of the closed ended questions were constructed using the Likert scale. According to Burns and Grove (2003:295), the Likert scale is designed to measure opinions or attitudes of study subjects, has a number of declarative statements with a scale after each statement and the number of categories ranges from four (4) to seven (7). The open-ended questions allowed participants to give perceptions on the concept being assessed if they so wished to do so.

For the qualitative strand of the study, the researcher developed interview guides for the focus group discussions (see Appendixes 2a and 2b). According to Polit and Beck (2012:538), the researcher’s questioning route, that is the series of questions used to guide the interview, is key to an effective focus group and that a good questioning strategy is to move from general to specific. In this study the researcher used an interview guide that had a grand tour question and follow up questions.

1.8.4 Data Analysis

Creswell (2003:220) explains that data analysis in mixed method studies relates to the type of design chosen and involves both quantitative (descriptive and inferential numeric analysis) and qualitative (descriptive and thematic text or image analysis). Quantitative data was analysed using SPSS (23) and a professional statistician was engaged in the process.

Qualitative data was analysed using constant comparison analysis. As explained by Leech and Onwuegbuzie (2007:565) it is the most used type of analysis developed by Glaser and Strauss (1967) (further described by Strauss & Corbin 1998) which involves
reading the entire set of data, chunking the data into smaller meaningful parts, labelling each chunk with a descriptive title or code and identifying and documenting a theme based on each title. Chapter 4 gives a detailed description of the data analysis procedures followed in this study.

1.9 ETHICAL CONSIDERATIONS

According to Polit and Beck (2012:726), ethics is ‘a system of moral values concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants’. The researcher obtained ethical clearance from the Ethics and Higher Degrees Committee of the Department of Health Studies in the College of Human Sciences at the University of South Africa (UNISA) (see Annexure 1). The researcher then sought permission to conduct the study from the Ministry of Health in Lesotho (see Appendixes 7a and 7b) and permission was granted (see Annexures 2a and 2b). The researcher then sought permission to conduct the study from partners of the Ministry of Health being the District Health Management Team (see Appendix 7c) and CHAL (see Appendix 7d), Maseru City Council (see Appendixes 7e and 7f) and permission was granted (see Annexures 3 and 4).

Emanuel, Wendler, Killen and Grady (2004: 930-936) provided benchmarks for ethical research that were used to guide the ethical principles in this study and include collaborative partnership, social value, scientific validity, fair selection of study population, favorable risk-benefit ratio, independent review, informed consent and respect for recruited participants and study communities. Ethical considerations are discussed in greater detail in chapter 3.

1.10 SCOPE AND LIMITATIONS

The scope of the study was limited to process evaluation of the ART program in the primary health care settings of Lesotho. It did not seek to ascertain any outcome impacts of the program.

A limitation is that participants involved in the focus group discussions may have not freely provided all information because of fear that the information they provide might actually deprive them of the current services being provided. This was avoided by
ensuring confidentiality agreements were signed by participants involved in focus group discussions and all information was kept confidential and in a safe lockable cupboard, located in the researcher`s office which is in a secure building, until the study was complete and only used for purposes of the study (see Appendix 4).

1.11 CONCLUSION

This chapter presented an overview of the study on the evaluation of the ART program in the PHC settings of Lesotho. The introduction and background gave a brief highlight of existing literature on the ART program in PHC settings. The problem statement and purpose of the study gave an insight into the objectives of the study. The methodology showed the intended plan of action used by the researcher in undertaking the research project. The following chapter presents literature that currently exists on the ART program. The chapters to follow provide an in-depth description of the study, its procedures, results and discussions.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This section provides literature on the ART program processes, its successes, challenges and perceptions within the PHC context. Burns and Grove (2003:110) explain that a review of literature is conducted to summarise the research based knowledge. The authors further explain that in quantitative research, literature review is conducted to direct development and implementation of the study while in qualitative research to provide a background for the study (Burns & Grove 2003:112).

In this study the literature will be presented to allude to both the quantitative and qualitative aspects of the study. Key words that were used to search the literature include; evaluation, antiretroviral therapy program, HIV/AIDS program, primary health care, antiretroviral therapy, evaluation of HIV/AIDS, Lesotho. Data bases that were used to search for literature are BioMed central, Bioline international, CINAHL, Cochrane library, EBSCO Host, Health services and science research, Medline, NCBI, Open access thesis and dissertations (OATD), Public Library of Science (PLOS), ProQuest, PubMed central, Wiley online and WHO countries.

2.2 THE KINGDOM OF LESOTHO

According to Bureau of MoHSW, Lesotho & ICF Macro (2009:1), the country is also described in terms of residential areas, urban and rural and further subdivided into ecological zones of lowlands, foothills, mountains and Senqu River valley. As seen in figure 2.1, districts of Mokhotlong, Thaba Tseka, Qacha`s Nek and Quthing are located in the highland areas whereas Maseru, Berea, Leribe, Butha Buthe, Mafeteng and Mohale`s Hoek are found in low land areas.
However, the topography of the country is such that there are highland regions in areas designated as low lands especially at points of demarcation and these are referred to as foot hills.

Lesotho is described as a lower middle income country with a capita Gross Domestic product (GDP) of US$2.448 billion in 2012 (World Bank 2013). The population is estimated at 1,876,633 of which only 23% live in urban areas, the annual population growth rate was 0.08% between 1996 and 2006, is primarily a country of subsistence farming, has an inflation rate estimated at 4.5% and an unemployment rate of 22.7% (MoHSW, Lesotho & ICF Macro 2009:1). It is estimated that 24% of the adult population (15-49 years) is HIV positive and the pandemic continues to have a negative impact on life expectancy and has reduced productivity, worsened household poverty, broken
down family structures and increased the number of orphans and child-headed households (MoHSW, Lesotho & ICF Macro 2009:159).

According to the Health Planning and Statistic Department of the Ministry of Health (2013), the health care system of Lesotho is manned by a total of twenty-one hospitals, four primary hospitals, and two-hundred-and-seven health centre facilities and four filter clinics and all are distributed disproportionately across the country (figure 2.2). The health facilities are owned by various stakeholders including the Government of Lesotho, Christian Health Association of Lesotho (CHAL), Red Cross Society and private entities. The Government of Lesotho owns a total of ninety-nine health facilities. CHAL is a church-based organisation which owns a total of eighty-one health facilities and is the major partner to the Government of Lesotho. The Red Cross Society of Lesotho owns a total of four health facilities whilst private facilities total to fifty-two (Health Planning and Statistic Department of the Ministry of Health 2013).

![Map of Lesotho health facilities](image)

*Figure 2.2: Map of Lesotho health facilities*
(Source: National University of Lesotho Geography Department)
With assistance from the Millennium Challenge Corporation (MCC) Lesotho built and/or renovated health centre facilities, all of which play a pivotal role in providing primary health care services to local communities, within all of its ten districts (MCC [s.a.]). MCC [s.a.] further elaborated that the rehabilitated health centres would provide high quality access to ART, antenatal and delivery services and other primary health services for the many Basotho in disadvantaged areas, whereas the improved staff housing would result in nurses living nearby and therefore provide immediate service for acute and maternal care. Anecdotal evidence suggests that primary health care facilities are usually managed (under supervision of District Health Management Teams (DHMT)) by registered nurse midwives who are qualified with specialized training in the provision of midwifery services or nurse clinicians who are qualified as nurse midwives with specialized training in primary health care and/or community health nursing.

2.3 ART PROGRAM IN LESOTHO

2.3.1 Primary health care

Lesotho, like many other sub-Saharan African countries, uses the PHC strategy for the delivery of health services to the Basotho Nation. PHC is defined as “essential health care that is based on scientifically sound and socially acceptable methods and technology, which make universal health care accessible to all individuals and families in a community, through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.” (WHO1978). The goal of PHC is to reduce exclusion and social disparities in health, organise health services around people’s needs and expectations, integrate health into all sectors, pursue collaborative models of policy dialogue and increase stakeholder participation (WHO 2008:10) and PHC services are being provided within the health centre facilities.

According to Obioha and Molale (2011:73), PHC is driven by a political philosophy that emphasises radical change in both the design and content of conventional health care services and advocates for an approach to health care principles that allow people to receive services that enable them to lead socially, economically and productive lives. Anecdotal evidence suggests that Lesotho currently practices a `supermarket approach` in the provision of health care services in PHC facilities allowing patients to receive a
range of services during the same visit. With integration of HIV/AIDS services into the PHC system, patient satisfaction was found to remain high as there were other benefits that extended beyond the level of the individual patient and health care system (Odeny, Penner, Lewis-Kulzer, Leslie, Shade, Adero, Kioko, Cohen & Bukusi 2013:[6]). However more evidence is required to ascertain whether integrated PHC services actually improve health care delivery and access.

2.3.2 HIV/AIDS

According to UNAIDS (2016), sub-Saharan Africa remains the region most affected by HIV/AIDS with about 25.6 million people living with HIV in 2015 and having had 66% of new infections. Most individuals with HIV or at risk of HIV are reported not to have access to prevention, care, treatment and there is still no cure (UNAIDS 2016). Currently 77% of pregnant women with HIV globally have had access to ART and new infections in children have declined by 50% since 2010 (UNAIDS 2016).

HIV/AIDS has had a devastating impact on global health as compared to other health problems. The epidemic in sub-Saharan Africa continues to have a major impact on individuals, families, households, communities, businesses and the economy in general and it is still women and children who are worst affected (van Dyk 2013:8). While incidence rates in the past decades have been trending downwards for women, they remain highest in the world (Vermund, Sheldon & Sidat 2015:[1]). HIV continues to have a negative effect on life expectancy and has reduced productivity, worsened household poverty, broken down family structures and increased the number of orphans and child-headed households. The epidemic remains generalized, affecting more males than females whilst incidence and AIDS related mortality have been slowly declining (Ministry of Health, Lesotho 2015:1)

In Lesotho prevalence varies amongst different sub-groups with prevalence amongst sex workers estimated to be 3 times higher than the adult population due to violence, criminalization, stigma, discrimination, lack of funding and targeted programs (MoH, Lesotho 2015: 3). Lesotho remains committed to attaining universal access to HIV prevention and treatment and care services as HIV testing coverage amongst pregnant women increased from 9% in 2005 to 57% in 2010 (WHO, Joint United Nations Program on HIV/AIDS, United Nations Children`s Fund. 2011).
2.3.3 Antiretroviral therapy

Thousands of HIV positive individuals have had access to ART and their quality of life has greatly improved. The success of ART has been understood to be dependent on early identification of infection in people living with HIV/AIDS, rapid and appropriate starting of ART, high levels of viral suppression, management of toxicities and retention in care (Bekker, Venter, Cohen, Goemare, van Custem, Boulle & Wood 2014: 107). Drivers of the global response to the epidemic have included several international obligations, scale up initiatives such as the 3 by 5 initiative, Universal access targets and the treatment 2.0 strategy and all resulted in increased treatment coverage and catalysing the necessary environment for the formation of operational and programmatic components for an expanded and maintainable global response (Vitoria, Vella & Ford 2013:12). The Government of Lesotho implemented antiretroviral therapy in 2001 and the free antiretroviral therapy program started in November 2004 (WHO, Joint United Nations Program on HIV/AIDS, United nations Children’s Fund. 2005). As providers and governments move toward expanded services, retention is crucial and more effective partnerships between close community health care workers and traditional healers must be considered to facilitate referrals and establish a strong system of support for treatment adherence and other HIV related issues (Vermund et al 2015:[2]).

The most common mode of transmission of HIV remains through heterosexual contact and mother to child transmission and it is through knowledge and behavior change that the pandemic can be controlled. Hence ART has been targeted to prevent vertical transmission to unborn babies through prevention-of-mother-to-child-transmission (PMTCT). PMTCT prevents paediatric HIV infection through primary prevention of HIV infection in the child bearing population through a three drug (Option B+) regimen and is achieved through provision of care and follow up and psychological support (MoH, Lesotho & ICF International 2014:191). ART has also been reported to have had an impact on reduction of opportunistic infection morbidity especially amongst TB patients. In Lesotho there has been a significant increase in adult ART from 13% in 2009 to 59% in 2013 and the government is scaling up district and facility level quality improvement services with deployment of more nurse clinicians to ART clinics in district hospitals (United Nations Development Program (UNDP) 2013).
2.3.4 Task shifting

The World Health Organization made recommendations for task shifting HIV care to nurses in resource limited settings and it is yet to be established what the actual effect of task shifting is on the quality of life of people with HIV (Monti, Blanche, Boyer, Kouanfack, Delaport, Bonono, Carrieri, Protopopescu, Laurent & Spire 2015:307).

According to Labhardt et al (2013:[2]), “in response to severe staff shortages, Lesotho published national guidelines and started to implement a nurse-based model to decentralise and scale-up ART provision”. This move has been seen in many other sub-Saharan African countries including Botswana, South Africa and Cameroon. In Mozambique, task shifting was reported to result in increased access to ART, reduction of physician work load, reduction of patient waiting times, closer follow up of patients, improved quality of care and improved integration HIV services (Rustagi, Manjate, Gloyd, John-Stewart, Micek, Gimbel & Sherr 2015:[7]).

In South Africa, in keeping with a doctor-supported nurse-led ART program, the number of nurses certified to provide ARV treatment increased from 250 in 2010 to 10 000 in 2012 whilst shifting of other tasks to community care workers resulted in ART scale up (Bekker et al 2014: 110). Yibbeltal et al (2012:27-28) also reported the use of mid- and low-level cadres as substitutes for physicians to improve access to and sustainability of health services in rural and peri-urban communities in Ethiopia. Patients enrolled in nurse-led ART have been seen to achieve substantial improvements in immune function over a short period of time and more attention should therefore be given to preventing the development of opportunistic infections in patients managed in PHC settings (Schexnayder & Baernholdt 2014:[1]).

Several other studies also reiterate to the use of nurses for the provision of ART in resource limited settings. Chen, Lai, Liu, Pai, Ko and Ko (2014:69) concluded that nurse–led case management programs have a role in improving HIV-related health outcomes, improve patient retention on ART and are associated with successful viral suppression. In a review by Kredo, Adeniyi, Bateganya and Pienaar (2014:[1]) the authors concluded that shifting responsibility from doctors to adequately trained and supported nurses did not actually decrease the quality of care and may result in reduced numbers of patients lost to follow up. Monti et al (2015:308) in their study also
made conclusions that supported the WHO recommendation for task shifting in resource limited settings. Fairall, Bachmann, Lombard, Timmerman, Uebel, Zwarenstein, Georgeu, Colvin, Lewin, Comick, Draper, Tshabalala, Kotze, van Vuuren, Steyn, Chapman and Bateman (2012:897) in their article explained that expansion of nurses’ duties to include ART initiation could be done safely and result in improved health outcomes and quality of care.

In Lesotho the majority of patients receive health care in primary health care settings being the health facilities located variously across the country and mostly managed by nurses/midwives. Such an initiative has been seen to be effective and feasible in the implementation of antiretroviral therapy. Green, De Azevedo, Patten, Davies, Ibeto and Cox (2014:[1]), however, suggested use of a nurse-mentor driven mentorship program to enable competent nurse initiation of the majority of patients, enabling doctors to manage complex case and it also allowed nurses to improve their confidence in performing HIV related clinical tasks.

However, knowledge on the ART program in Lesotho does remain inadequate and this study therefore envisages addition to the existing body of knowledge on the current practices of propagating the ART program in the primary health care settings of Lesotho.

2.3.5 Experiences and views on the ART program

Perceptions and views on the ART program are crucial to understanding the mind-set that nurses and patients have on the program. Ruud, Srinivas and Toverd (2012:[2]) in their study concluded that nurses expressed lack of knowledge and confidence in managing adverse drug reactions, patients’ difficulty in communicating information on side effects, insufficient pharmaco-vigilence and role of poverty as challenges to providing ART amongst HIV positive patients.

Chiegil, Zungu and Jooste (2014:373) reported that “end users were satisfied with uninterrupted antiretroviral drug supplies, courtesy treatment, volunteerism of support group members and quality counselling services and concluded expected effective collaboration between healthcare providers and support group members, to enhance
the quality of life of people living with HIV”. Odeny et al (2013: [6] also explained that integration of ART into PHC services actually extended resources concentrated within HIV care to a broader patient population without diminishing patients` perceived satisfaction. Several studies have reported factors that have resulted in the uptake or discontinuation of ART by patients.

Patel, Baxi, Patel, Golin, Mehta, Bakshi, Shingrapure, Modi, Coonor and Mehta (2012: [5]) reported that participants of their study agreed that ART was beneficial as their health improved although factors such as commuting long distances, having to wait long for services and being recalled so many times to the facility were some of the obstacles to accessing ART. The authors further explained that service providers` perspectives on ART included challenges with adverse effects of the medication, lack of belief on the part of patients that ART would be beneficial and lack of trust in the Governmental set up (Patel et al 2012:[4-5]).

Tabatabai, Namakhoma, Tweya, Phiri, Schnitzler and Neuhann (2014:[1]) in their study cited various categories for treatment interruption including travel costs, treatment fatigue and health care provider related reasons. The authors cited travel costs to be the main reason for treatment interruption as it competed with other costly demands such as food, housing and school fees (Tabatabai et al 2014:[8]). Treatment fatigue was described in terms of forgetfulness or feelings of being overwhelmed by the challenge to adhere to ART (Tabatabai et al 2014:[8]). Health care provider related reasons were perceived ineligibility for ART including lack of treatment supporters, health booklets and poor provider-patient relationships (Tabatabai et al 2014:[8]).

In Lesotho literature on the perceptions of both patients and nurses/midwives/nurses clinicians is still very limited. This study desires to explore and describe the perceptions of both patients and health care providers on the ART program.

2.3.6 Challenges of the ART program

Since the beginning of the AIDS pandemic access to comprehensive health care has remained a challenge in Lesotho due to limited health infrastructure and human resource shortages and like many other sub-Saharan countries Lesotho has been faced
with a major challenge of scaling up access to ART. Various challenges impede ART in resource limited settings including:

*Lack of health care workers and medical infrastructure*

The public health sector in sub-Saharan Africa has always been under-sourced even before the advent of the HIV pandemic. Matsubayashi et al (2011:1) also alluded to a lack of evidence on whether HIV/AIDS programs strengthen or actually distort the overall health services.

In Lesotho anecdotal evidence points to several challenges in the propagation of the ART program including insufficient human resources who are virtually overworked, inefficient implementation of the program, lack of equipment and inadequate antiretroviral therapy drug supplies. Currently there is an average total of 3 registered nurses/midwives working in the health centre facilities, a number too low to meet all the health care demands of the populations served, and they are supported by at least 2 nurse assistants (who have only 18 months to 2 years training and have limited functions). Uys and Klopper (2013:2) recommended that at least 1 specialist nurse, 5 registered nurse midwives and 4 enrolled nurses were needed for effective running of PHC settings. In 2016 the South African Nursing Council (SANC) reported a 35% growth in the number of registered nurse midwives from 196 914 in 2006 to 278 617 in 2015 and this was greatly attributed to 16% increase in the South African population (South African Nursing Council (SANC) 2016) and still this is inadequate to meet demands in the provision of health care services.

Mack, Wong, Mckenna, Lemons, Odhiambo and Agot (2015:54) in their study reported human resource challenges which included increased workload, insufficient personnel, the need for task shifting/sharing, training needs, infrastructural requirements, discrimination and stigma by staff towards at risk clients and providers personal priorities in offering services. Bekker et al (2014: 110) explained that poor resource allocation, queue times, cleanliness and staff attitudes were challenges in the propagation of health care services. Mitchel and Matlakala (2012:40-41) presented five broad areas of challenges namely; challenges related to sustainability, challenges related to adherence, challenges related to health systems, challenges related to stigma and challenges related to behavior and the surge of whoonga and the infiltration of ART
roll-out by crime and violence. In a study by Schexnyder and Baernholdt (2014:[1]) major program challenges reported were clinic infrastructure, community stigmatization of HIV, integration of HIV and non-HIV services and the increased professional workload.

Emenyonu and Green (2012:118) identified three main barriers to HIV care in resource limited settings to be stigma, financial constraints, and inflexible clinic schedules and that improvement should therefore target all three components of these barriers, while strengthening health care systems and building local leadership remain the foundation for sustained success. Bekker et al (2014:110) also reiterated that challenges to achieving adequate and appropriate health care services included poorly located facilities, inadequate and under-maintained infrastructure, failure of the public health system to meet demand and sustain quality and uneven and poor-quality public services. In an attempt to curb theses challenges the government of South Africa like many other sub-Saharan countries took to decentralization of health care services and primary health care re-engineering with extensive use of lay community care workers (Bekker et al 2014: 110).

*Limited monitoring facilities*
Patient monitoring involves documenting all patient encounters by keeping regular and accurate records of key aspects of care and treatment (MoH, Lesotho 2016: 109) Monitoring provides essential information for individual case management, for health facility management and for operating and improving and HIV/AIDS program at the facility, district, national and international levels (MoH, Lesotho 2016: 109). ART services were generally introduced against a background of weak health information systems, limited infrastructure and diverse service providers with differing reporting requirements (Bekker et al 2014: 111). This was further complicated by changes in reporting practices with most provinces in South Africa switching from reporting numbers of patients cumulatively to reporting numbers of patients currently on ART (Bekker et al 2014: 111). Poor documentation and tracking systems, coupled with a lack of consistent counseling and care provision and long sample and result turnaround time were found to be predictive of not receiving test result (International AIDS Society (IAS) 2011: 5)
Routine virological testing is crucial for early detection of virological failure, preventing the development of drug resistant mutations, identifying patients in need of intensive adherence support and accurately diagnosing treatment failure (Roberts, Bygrave, Farjado & Ford 2012: [4]). Laboratory monitoring in resource limited setting is reported to be one of the key challenges for ART access and success (Belec & Bonn 2011: [1]). In South Africa the ART program has large stress on the National Health Laboratory Service (NHLS) as millions of specimens ranging from dried blood spots, viral loads and CD4+ counts tests have required processing and reporting (Bekker et al 2014: 111). It has also been reported that experts are too quick to develop guidelines whilst monitoring to track ART and PMTCT remains insufficient (IAS 2011: 3).

**High cost of care and limited treatment choices**

To scale up treatment, ART delivery must made as simple as possible in line with public health approaches recommended by WHO and the price of viral load testing has to be reduced in order to benefit all patients in need in remote and resource limited settings (Roberts et al 2012: [2]). Currently there are four main suppliers of single manufacturer viral load testing platforms and only one has a majority stake in Africa and these platforms are expensive, require a high level of technical skills and laboratory infrastructure and are more suited to national or reference laboratories (Roberts et al 2012: [4]). In this light a broader availability of tests capable of being placed at district and health facility levels, without the formation of a monopoly by a single manufacturer is therefore required and that other multiple manufacturers are given access to a growing viral load testing market and that incentives for manufacturers of quality-approved genetics are encouraged through mechanisms such as cooperate licensing strategies, enabling access to a large number of overlapping patents applicable to molecular techniques (Roberts et al 2012: [4]).

The scale up of ART has been dependent on contributions from the international donor community and donor funds have enabled flexibility and the support of non-governmental organizations that have played a key role in the response to HIV treatment and prevention. However the cost considerations have resulted in the use of pre-dictated fixed dose combinations in sub-Saharan Africa and in Lesotho currently the recommended regimen for first line treatment is Tenofovir (TDF), Lamivudine (3TC) and Efavirenz (EFV).
**HIV/TB co-infections**

It is well documented that TB is the number one killer in people infected with HIV. Currently, Lesotho is ranked first globally in terms of TB incidences with an estimated per capita incidence 852/100 000, in 2014 and HIV and TB co-infection is common with an estimated 74% of TB patients tested HIV positive in the same year (MOH, Lesotho & ICF International 2014:285). The high prevalence of HIV infections (25%) in the country could be attributed to high prevalence of HIV/TB co-infections which in turn makes TB diagnosis and treatment an important part of health care for HIV infected persons (MoH, Lesotho & ICF International 2014:285).

In South Africa TB incidence continues to be on the rise and in 2012 1003/100 000 cases were reported of which 65% were co-infected with HIV, hence additional strategies are required in combination with Directly Observed Therapy short course to impact and control TB and in the setting of high HIV burden on a background of HIV/TB co-infection, both reactivation and high re-infection rates are important drivers (Bekker et al 2014: 111).

**Inability to link prevention to treatment**

Mutevedzi and Newell (2014:[2]) elucidated that ART during pregnancy, delivery and breast feeding could actually eliminate mother-to-child transmission, however, implementation was challenging, especially in resource limited settings. In Lesotho all HIV positive pregnant women are initiated on ART, in addition to the single dose niverapine they have to take once labour has started, despite their CD4 lymphocyte count or clinical staging. However, the Government of Lesotho has committed itself to provide free and accessible HIV treatment to children and has included management and treatment of children and infants in the standard treatment guidelines for HIV/AIDS and in the policy as well.

In conclusion, there is anecdotal evidence that challenges do exist in the propagation of the ART program in Lesotho, however, the greatest challenge is that documentation to support that remains narrow. This study aims to add to the existing body of knowledge on the current challenges being faced in the propagation of the ART program in Lesotho.
2.4 CONCLUSION

Despite the vast literature on the ART program little remains to be documented about the outcomes of the ART program in Lesotho. Thomas, Bunch and Card (2003:481) explained in their study that evaluation amongst HIV/AIDS prevention and management programs can result in the development of a framework that serves as a cost effective way to select promising programs for rigorous outcome evaluation, advance the field of HIV/AIDS prevention research by studying relationships between cultural competence and program effectiveness and capacity building of such programs.

This chapter described current context of the ART program in Lesotho and provided literature on the ART program in similar settings. The following chapter describes the methodology that was undertaken in this study to evaluate the ART program in PHC settings of Lesotho.
CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter presents the research design and methodology used in this study and describes how the study was conducted including the population, sampling procedures, data collection, data analysis and ethical considerations.

3.2 PURPOSE OF THE STUDY

The purpose of this study was to evaluate the ART program in the PHC settings of Lesotho and develop a tool that can be used to assess the ART program in the PHC settings of Lesotho.

3.3 STUDY OBJECTIVES

The objectives of this study were:

For the quantitative strand to;

- describe ART services offered in PHC settings of Lesotho.
- determine if staffing patterns had an association with
  - number of days ART services were offered
  - number of days PMTCT services were offered
  - number of patients seen
  - time spent by patients seeking ART services at the facility
  - time taken by a patient to consult a registered nurse midwife/clinician
For the qualitative strand to;

- explore and describe experiences and views of registered nurse midwives/clinicians on the ART program in the PHC settings of Lesotho.
- explore and describe experiences and views of patients on the ART program in the PHC settings of Lesotho.

For the whole study to;

- develop an evaluation tool that can be used to assess the ART program in PHC settings of Lesotho.

3.4 STUDY SETTING

The study was envisaged to be conducted in all 10 districts of Lesotho, however, data were collected in only 6 districts. This was due to either failure to obtain permission to collect data from the District Health Management Team (DHMT) or the district was not easily accessible due to the geographical terrain of the country. Figure 2.2 shows a map depicting the districts and the health facilities of Lesotho. Each district has at least one hospital and several health centre facilities which are disproportionately distributed. Data was collected from health facilities offering ART services in PHC settings and they included outpatients departments of district hospitals and health centre facilities. The registered nurses were recruited to participate in the study during their PHC planning meetings at the district hospitals. The patients were recruited to participate in the study at selected clinics on days on which they sought ART services.

3.5 RESEARCH DESIGN

According to Polit and Beck (2012:740) the research design is a strategy for addressing the research question including specifications for enhancing the study’s integrity or as described by de Vos et al (2011:142-143), the research design is a process of directing the researcher’s viewpoints for the purposes of a particular study. It is a strategic framework for action that serves as a bridge between research questions and the
execution or implementation of the research and distinguishes research from other forms of research (Terre Blanche et al 2006: 34).

This study conducted evaluation research which is defined by Polit and Beck (2012:726) as research which assesses how well a program, practice or policy is working. Evaluation research tracks the progress of social programs and is aimed at educational or social development (Terre Blanche et al 2006: 410). de Vos et al (2011:452) further explained the purpose of evaluation research to be the ‘intended use of the evaluation activity, namely gathering information for improving the design, development, formation and implementation of a program (formative evaluation); describing the process of a program as it is being developed (process evaluation); or assessing the impact, outcome or worth of a program (summative evaluation). Terre Blanche et al (2006: 411) reiterated the purpose of social research to be a focus on theories of change implicit in social programs and to analyze ways in which those involved in social programs go about their work, the issues they deal with and the manner in which they confront those issues.

In this study process evaluation of the ART program in PHC settings of Lesotho was conducted. Polit and Beck (2012:261) explained that ‘process analysis involves an in-depth examination of the program involving a collection of both qualitative and quantitative data’. Process evaluations are aimed at understanding internal dynamics of how a program, organization or relationship operates and requires sensitivity to both qualitative and quantitative changes in programs throughout their development and further investigate informal patterns and unanticipated interactions (Patton 2002: 160). In undertaking the process evaluation of the ART program in PHC settings of Lesotho the researcher used mixed methods research in which both qualitative and quantitative data were collected.

Mixed methods research is described by various authors in terms of philosophy or methods used. Polit and Beck (2012:734) define mixed methods research as ‘research in which both qualitative and quantitative data are collected and analysed to address different but related questions’. de Vos et al (2011:435) concurred with a definition of mixed methods research provided by Creswell and Plano-Clark (2011:5) which describes it as ‘a philosophical assumption as well as methods of inquiry which involves philosophical assumptions that guide the direction of the collection and analysis and the
mixture of qualitative and quantitative data in a single study or series of studies. Johnson et al (2007:120) described mixed methods as research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or set of related studies. According to Creswell and Plano Clark (2011:5), mixed methods is a research design with philosophical assumptions as well as methods of inquiry that guide the direction of the collections and analysis and the mixture of qualitative and quantitative approaches in many phases of the research process. de Vos et al (2011:435-436) and Creswell and Plano Clark (2011:12-13) further give the value or advantages of mixed methods research as:

- Enabling the simultaneous address of a range of confirmatory and exploratory questions and this therefore allowed the researcher to use both the qualitative and quantitative approaches.
- Providing strengths that offset weaknesses of and has potential for better inferences in either quantitative or qualitative research. The researcher was able to get an in-depth understanding of the ART program using focus group interviews which are not possible the quantitative data collection method.
- Giving comprehensive evidence for studying a research problem than either quantitative or qualitative research alone. The researcher merged both data sets to get a comprehensive understanding of the implementation processes of the ART program.
- Encouraging researchers to collaborate across both quantitative and qualitative methods giving greater confidence in findings than either approach alone. In this study the researcher gave an integrated description of the ART program from the merged data sets.
- Encouraging the use of multiple worldviews or paradigms rather than the typical association of quantitative or qualitative paradigms alone. Pragmatism in which both qualitative and quantitative worldviews of the ART program were used.
- Giving a greater opportunity for assortment of divergent views and perspectives and makes researchers alert to the possibility that issues are multifaceted than they may be originally. The researcher collected data from both registered nurses and patients to bring a better understanding of the ART program.
• Practical in allowing researchers to be free to use all methods possible to address a research problem as well as the fact that they make a combination of inductive and deductive reasoning processes. This allowed the researcher to collect the data using either qualitative or quantitative methods allowing the ART program to be critically analysed.

• Eliminating different kinds of bias hence explaining the true nature of phenomenon under investigation and improves various forms of validity or quality criteria. In this study the researcher employed rigor processes of both qualitative and quantitative research techniques.

Mixed methods research was chosen as the researcher envisaged collecting both qualitative and quantitative data to answer two separate but related study questions. The researcher viewed this type of research to be able to bring a more comprehensive evaluation of the ART program in PHC settings.

The mixed methods convergent parallel research design was used to address pertinent questions of this study. As explained by Creswell and Plano Clark (2011:78) the Convergent Parallel Research Design is one in which both quantitative and qualitative data are collected simultaneously but separately and have equal importance in addressing the study questions. The authors further explain that this study design is strong in that it makes intuitive sense, is efficient as both types of data are collected during one phase of the research at about the same time and that data analysis is independent for each data set using techniques traditionally associated with each data type (Creswell & Plano Clark 2011:78). The purpose of this type of study is to obtain different but complementary data on the same topic to best understand the research topic and bring together differing strengths and non-overlapping weaknesses of quantitative methods with those of qualitative methods and is used when the researcher has the intention to triangulate the methods by directly comparing and contrasting quantitative statistical results with qualitative findings for justification and validation purposes (Creswell & Plano Clark 2011:77). The researcher achieved triangulation by collecting both qualitative data through focus group discussions and quantitative data through a cross sectional survey. Data were also collected from different samples and they included registered nurses involved in the provision of ART services and patients who were HIV positive and sought ART services.
3.6 POPULATION

The study population is described as a large group of many cases from which the researcher draws a sample and can be stated in theoretical terms (Neuman 2003: 541). It is also referred to as the target population which is, according to Polit and Beck (2012:744), is the whole population in which the researcher is interested and to which he or she would like to generalize the study results. However, researchers do not have access to the whole population and therefore make use of the accessible population which is described Polit and Beck (2012:719) as that population which is available for the study and is often a non-random subset of the target population. The researcher also set eligibility or inclusion criteria which, according to Polit and Beck (2012:726), are criteria designating specific attributes for inclusion into the target population.

The population included health care professionals working in Lesotho; and all individuals who sought health care in the PHC settings of Lesotho.

The target population included registered nurses/midwives/clinicians providing ART services in PHC settings in Lesotho; and all individuals who were HIV positive and sought ART services in PHC settings in Lesotho.

The accessible population included registered nurses/midwives/clinicians providing ART services in PHC settings of Lesotho who were available at the time of the study and all individuals who were HIV/AIDS positive and sought ART services in PHC settings of Lesotho and were available at the time of the study.

Inclusion criteria were registered nurses employed in the health clinics providing primary health care services and available at the time of the study were included in the study. Adults aged 18 years and older who were HIV/AIDS positive, can speak either Sesotho and/or English and were able to give consent and available at the time of the study were included in this study.
3.7 SAMPLING

Burns and Grove (2003:495) explain that a sample is a subset of the population selected to take part in a study whilst Neuman (2003: 543) describes a sample as a smaller set of cases a researcher selects from a larger pool and generalizes to the population. The researcher describes the following sampling processes that were used to select participants to take part in the study.

3.7.1 Sampling frame

The sampling frame is described as the list of every member of the population from which the sample is drawn by Burns and Grove (2003:496) and Polit and Beck (2012:742). In this study the quantitative sampling frame included human resource registers of registered nurses working at PHC settings in Lesotho. The qualitative sampling frame included ART patient registers for HIV positive patients on ART and sought their treatment from PHC facilities.

3.7.2 Sampling technique

Quota sampling was used in the quantitative strand of the study. de Vos et al (2011:232-233) explain that the main purpose of quota sampling is to draw a sample that has exactly the same proportions and characteristics as the target population and the sampling procedures rely on a convenience choice. Due to the mountainous nature of the terrain of Lesotho, the researcher included all 10 districts to give room to get input from the nurses found in each district. In total there are one hundred and sixty (160) health centres distributed across the country. With an average of three registered nurses (including midwives and clinicians) the target population was four hundred and eighty (480) nurses. The researcher used the Raosoft sample size calculator to estimate the total number of participants needed for the quantitative strand of the study and it was two hundred and fourteen participants (214).

Convenience sampling was used to select registered nurses/midwives/clinicians working in PHC settings to participate in the study. Polit and Beck (2012:724) define convenience sampling as selection of the available individuals as participants in a study.
and it is also referred to as accidental sampling. Burns and Grove (2003:248) explain that convenience samples are generally inexpensive, accessible and less time consuming although they are considered a poor approach as they provide little control for the control of bias as subject are included in the study because they happened to be in the right place at the right time. The researcher chose this sampling approach owing to the location of the facilities in regard to the topography of the country (see figure 2.1). Some of the health centres are only accessible by air whilst others are inaccessible due to poor road networks. Hence the researcher decided to meet with them during their district monthly planning meetings. Registered nurses working in the PHC settings were introduced to the researcher and study and asked to participate in the study during their monthly PHC planning meetings (hence the reason for convenience sampling method as it was most suitable).

Purposive sampling was used to recruit registered nurses who took part in the focus group discussions. Purposive sampling, also referred to as judgemental, theoretical or selective sampling, includes the conscious selection of participants for the study (Burns & Grove 2003:255; Polit & Beck 2012:517). Burns and Grove (2003:287) explain that when targeting professional groups, the participants can be known to each other and in such cases purposive sampling is used to recruit the participants. The researcher did not use the same registered nurses involved in the completion of the questionnaires. Two (2) focus group discussions were done for the registered nurses/midwives/nurse clinicians rendering ART services. The researcher invited five (5) registered nurses from two (2) health centre facilities found in two (2) adjacent districts (Maseru and Mafeteng districts) to participate in the first focus group discussions when they came for their statistical reporting meeting at a hospital responsible for the supervision of both clinics. The second focus group discussion involved three (3) registered nurses from another health facility in Maseru district. The interviews were conducted in English, as some of the participants were foreign nationals. Participants were asked to provide written consent to ensure confidentiality of information discussed in the focus groups.

Purposive sampling was also used to identify HIV/AIDS positive individuals who could participate in focus group discussions at the chosen health centre facilities. Again two rounds of focus group discussions were conducted. The first group had seven (7) participants and the second group had four (4) participants from Maseru and Mafeteng...
districts. As they came in for their regular ART services participants were introduced to the researcher and the study and asked to participate in the study.

3.7.3 Sample size

For the quantitative strand of the study, the researcher used the Raosoft calculator to determine the sample size. There were a total of 160 health centre facilities and 40% (n=64) participated in the study. Convenient selection of the health centre was done according to accessibility within the district. With a total of one hundred and sixty (160) health centre facilities within Lesotho and an average of three registered nursing personnel working at each facility, in total there were four hundred and eighty (480) registered nursing staff serving the health centre facilities. With reference to the Raosoft calculator, using a confidence level of 95%, allowing a 5% error margin and a 50% response rate, a sample size of two hundred and fourteen (214) was found appropriate to adequately represent the population under study (www.raosoft.com/samplesize.html).

For the qualitative strand of the study, focus group discussions were conducted. According to Burns and Grove (2003:286), studies using focus group interviews usually include between one (1) and fifty (50) groups. According to Dickinson, Leech and Zoran (2009:[3-4]), the number of times a focus group meets can vary from a single meeting to multiple meetings. Onwuegbuzie et al (2009:[3-4]) explained that using multiple focus groups permits the researcher to assess the extent to which saturation was reached and the groups can be formed by pre-existing groups or newly formed groups. Onwuegbuzie et al (2009:[3-4])) suggested that three to six different focus groups are adequate to reach data saturation and/or theoretical saturation with each group meeting once or multiple times. In this study four (4) focus group discussions were conducted.

Burns and Grove (2003:287) stated that each focus group should have six (6) to ten (10) participants. Onwuegbuzie et al (2009:[3-4])) endorsed the use of very small focus groups which he referred to as ‘mini-focus groups’ which include 3 or 4 participants when participants have specialized knowledge and/or experiences to discuss in a group and further suggested over-recruiting by at least 20% to 50% of the total number of participants. In this study the smallest focus group had three (3) participants and the largest had seven (7) participants and a 43 % over recruitment rate.
3.8 DATA COLLECTION INSTRUMENTS

Data collection instruments are itemized formal written documents that are used to collect and record information (Polit & Beck 2012:191). Babbie and Mouton (2002: 647) described a questionnaire as “a document containing questions and other types of items designed to solicit information appropriate to analysis” and used in survey research and experiments.

Onwuegbuzie et al (2010: 56) provided an Instrument Development Construct Validation (IDCV) process for optimizing the development of the quantitative instrument. The authors presented crossover analyses as a key mechanism for IDCV and it is the highest form of combining quantitative and qualitative data collection techniques as the researcher make use of Gestalt switches (Kuhn 1962) from a qualitative lens to a quantitative lens and vice versa (Onwuegbuzie et al 2010:58). The process of IDCV is understood to involve both inductive and deductive reasoning. These crossover analysis procedures also involve a form of inter-subjectivity (agreement about reality, ultimately, is socially constructed) and involve incorporation of both insiders’ (i.e., emic) views and the researcher-observer’s (i.e., etic) views for instrument development and construct validation and that the balance between the emic perspectives (stemming from the participants involved in the instrument development and/or construct validation) and etic perspectives (e.g., stemming from extant theories and the researcher’s a priori assumptions) is appropriate such that quality meta-inferences can be made. This use of abductive logic, inter-subjectivity, and emic-etic perspectives makes the use of mixed research in general and crossover analyses in particular very appealing for instrument development and construct validation and they are confirmed through criterion related, content related and construct related validity (Onwuegbuzie et al 2010:58-59).

The researcher used the following processes in IDCV:

*Construct conceptualisation:* involves the researcher being aware of their own personal belief systems related to three dimensions of belief systems: (a) overall worldview, (b) research philosophy, and (c) discipline-specific philosophy (Onwuegbuzie et al 2010:62). In this study the researcher conducted a literature review on the ART program and used the Intervention wheel framework as guides in the development of the tool and 14 interventions were incorporated. The interventions included surveillance,
screening, case finding, case management, consultation, referral and follow-up, health teaching, counselling, outreach, disease and other health investigation, collaboration, coalition, community organising and advocacy. Local experts were also engaged during the research process and they included a statistician. At this stage pre-test was conducted and both qualitative and quantitative data were collected.

Identify and describe behaviours that underlie the construct: Onwuegbuzie et al (2010:63-64) explained that in this phase the instrument developer might undergo the grounded theory analytical steps of open coding (coding the literature and data extracted from the local experts and key informants by chunking the information into smaller segments and then assigning a descriptor, or “code,” for each segment) and axial coding (grouping the codes into similar categories). The developer might also use some form of ethnographic analysis, comprising Spradley's (1979) analysis procedures of domain analysis (using the relationships between symbols and referents to identify domains), taxonomic analysis (creating a system of classification that catalogs the domains into a visual representation to help the researcher understand the relationships among the domains), and componential analysis (using a visual representation to discover the differences among the subcomponents of domains) (Onwuegbuzie et al 2010:64). The authors further stated that other procedures such as the Delphi technique might be used and whatever data collection and data analysis tools are used, it is essential that a series of rounds is conducted, with each round involving the collection of qualitative and quantitative data until data saturation is reached hence allowing the instrument developer to identify the behaviours underlying the construct of interest (Onwuegbuzie et al 2010:64).

In the quantitative strand of the study the researcher developed a structured self-report questionnaire with both open- and closed-ended questions (see Appendix 1). The closed ended questions were constructed using the Likert scale. According to Burns and Grove (2003:295), the Likert scale is designed to measure opinions or attitudes of study subjects, has a number of declarative statements with a scale after each statement and the number of categories ranges from four (4) to seven (7). The open-ended questions allowed participants to give perceptions on the concept being assessed if they wished to do so. A statistician was engaged during the development of the questionnaire and items on the questionnaire were developed using the conceptual frame work for the study (see figure 1.1).
For the qualitative strand of the study, the researcher developed interview guides for the focus group discussions (see Appendix 2a and 2b). According to Polit and Beck (2012:538), the researcher’s questioning route, that is the series of questions used to guide the interview, is key to an effective focus group and that a good questioning strategy is to move from general to specific.

3.8.1 Pre-test

The researcher conducted a pre-test before the actual data collection. According to de Vos (2011:446-447), this is done to ‘test drive’ the research procedures, identify possible problems in the data collection protocols and set the stage for the actual study and it depends on the research design, sampling frame and research context. For the quantitative pre-test the researcher identified 8 registered nurses from PHC settings in Maseru district not selected to take part in the study to complete the questionnaire and they were not be part of the actual study. Data obtained from the pre-test was analysed using Statistical Package for Social Sciences (SPSS version 23) and presented to the supervisor. The revised data collection tool was also presented to the supervisor and used in the actual study.

The researcher also identified a focus group of registered nurses/midwives/clinicians not included in the quantitative strand to take part in a focus group discussion for the qualitative strand of the study. Creswell and Plano-Clark (2011:184) explain that in a parallel study, the same concepts need to be addressed in both the quantitative and qualitative data collection so that the two (2) data sets could be compared or merged. Therefore the researcher asked the same concepts elicited quantitatively in the focus groups discussions. However, as stated by de Vos et al (2011:370) pre-testing focus group questions is rather difficult and the true pre-test is the first focus group with the participants. Data were analysed using constant comparison analysis (further described in data analysis section) and also presented to the supervisor.
3.8.2 Reliability of pre-test for the quantitative strand

Cross over analyses techniques used to analyse the pre-test data were adopted from the IDCV framework postulated by Onwuegbuzie et al (2010:64). Data analysis techniques included integrated data reduction (reducing the dimensionality of qualitative data/findings using quantitative analysis and/or quantitative data/findings using quantitative analysis), integrated data display (visually presenting both qualitative and quantitative results within the same display), data transformation (converting quantitative data into data that can be analysed qualitatively and/or qualitative data into numerical codes that can be analysed statistically), data correlation (correlating qualitative data with quantitised /quantitative data and/or quantitative data with qualitised/qualitative data), data consolidation (combining or merging multiple data sets to create new or consolidated codes, variables, or data sets), data comparison (comparing qualitative and quantitative data/findings), data integration (integrating qualitative and quantitative data/findings either into a coherent whole or two separate sets of coherent wholes), warranted assertion analysis (reviewing all qualitative and quantitative data to yield meta-inferences), and data importation (using follow-up findings from qualitative analysis to inform the quantitative analysis or vice versa) (Onwuegbuzie et al 2010:64).

The researcher concluded the following regarding the data collection instrument:

- The instrument was user friendly as the pre-test participants were able to answer it independently.
- The researcher therefore assumed the instructions were clear to follow as even comments were made in spaces provided.
- All questions seemed clear as none of the participants asked for clarifications during the pre-test phase.
- It took 15-20 minutes to complete the questionnaire. The researcher felt this time was adequate to allow participants to respond to all questions.

Tools developed at this stage of the research process were therefore used during the data collection process for the study.
3.9 DATA COLLECTION PROCESS

In this study data was collected from different samples with different individuals. Quantitative data was collected using structured questionnaires. The questionnaires were given to registered nurses/midwives/clinicians selected to participate in the study. Registered nurses working in the PHC settings were introduced to the researcher and study and asked to participate in the study during their monthly PHC planning meetings before the commencement of the meeting (hence the reason for convenience sampling method as it was most suitable). Upon agreeing to participate the participants were asked to complete consent forms (see Appendix 3a or 3b) after which they completed the questionnaire during their lunch breaks.

Qualitative data was collected using focus group discussions. As explained by de Vos et al (2011:360-361), these are group interviews to promote self-disclosure among participants and are useful when multiple viewpoints or responses are needed on a specific topic. Two (2) focus group discussions were conducted for the registered nurses/midwives/nurse clinicians rendering ART services. The researcher invited five (5) registered nurses from two (2) health centre facilities found in two (2) adjacent districts (Maseru and Mafeteng) to participate in the first focus group discussion when they came for their statistical reporting meeting at a hospital responsible for the supervision of both clinics. The second focus group discussion involved three (3) registered nurses from another health facility in Maseru district as they came in for their statistical reporting meeting. The interviews were conducted in English, as some of the participants were foreign nationals. Participants were asked to provide written consent to ensure confidentiality of information discussed in the focus groups. Permission to record the interviews was also sought from participants, it was granted and the interviews were recorded.

Participants receiving ART services were recruited to participate in focus group discussions from two (2) health centre found in Maseru and Mafeteng districts. The first group had seven (7) participants and the second group had four (4) participants. As they came in for their regular ART services participants were introduced to the researcher and the study and asked to participate in the study. Those willing to take part in the focus group discussions were asked to give written consent before the focus
group discussions began. To avoid long waiting hours the researcher intended to recruit participants before the actual services began at eight o’clock in the morning. But this was not possible owing to the busy morning hours. Instead the focus group discussion was done at the end of the working day (around 1600hrs) when the last patients were receiving services. At this time more privacy could be ensured for the participants. The interviews were conducted in Sesotho and transcribed by the researcher. An independent transcriber was engaged to check the transcribed verbatim to ensure that meanings were not lost in the transcription process.

Polit and Beck (2012:538) explained that a typical 2 hour focus group session should include about 12 questions. de Vos et al (2011:370) in contrast explain that typical focus groups are 60 to 120 minutes long, must not go beyond the two hour maximum and suggest that fewer than ten (10) questions should be included. Onwuegbuzie et al (2009:[3]) stated that well designed focus group discussions usually last between 1 and 2 hours. In this study the focus group the discussions took at least 1 hour to 1 hour 30 minutes and had a maximum of thirteen (13) questions. Permission to record the interview was sought from the participants. Explanation of the purpose of the recording (being to enable to researcher to listen repeatedly and develop transcripts of the interview responses) was given to participants. Upon giving consent a digital voice recorder was used to record the discussions and field notes were taken to document non-verbal communication. The researcher transcribed the audio recordings that were conducted in Sesotho. The focus group discussions were conducted in private rooms made available by the facility.

3.10 LEGITIMATION

Creswell and Plano Clark (2011:239) explain that validity in mixed methods research is a strategy which addresses potential issues in data collection, data analysis and the interpretations that might compromise the merging or connecting of the quantitative and qualitative strands of the study and the conclusions drawn from the combination. The authors further suggest a focus on the validity issues inherent to quantitative and qualitative research as discussions about validity in mixed methods research are still in their infancy (Creswell & Plano Clark 2011:239). Onwuegbuzie and Johnson (2006: 54) reiterated that in every mixed research study researchers must deal with the problems of representation, legitimation and integration but discussions about validity issues that
characterize these problems are in relative infancy. In mixed methods research the term legitimatization is used to refer to both qualitative and quantitative issues of validity however it does not suggest that quantitative researchers must refrain from using the term validity or that qualitative researchers should cease using the terms trustworthiness, credibility, plausibility and dependability (Onwuegbuzie and Johnson 2006: 55). In this study the researcher used the terms validity and reliability for the quantitative strand and trustworthiness for the qualitative strand.

3.10.1 Validity and reliability in the quantitative strand

In this study the researcher used quantitative validity and reliability methods to address the quantitative strand of the study.

Validity: Polit and Beck (2012:745) define validity as a quality standard which refers to the ‘degree to which inferences made in a study are accurate and well founded and in measurement of the degree to which an instrument measures that it is intended to measure’.

Content validity as explained in Polit and Beck (2012:336) is the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the concept area. A pre-test was conducted to ascertain relevance of items on the questionnaire and an analysis was conducted using SPSS. The researcher submitted the reviewed data collection instrument and results for review by the supervisor.

Construct validity is described by Polit and Beck (2012:723) as validity of inferences from observed persons, settings and interventions in a study to the constructs that these instances might represent; with an instrument it is the extent to which it measures the concept under investigation. A pre-test was conducted to identify if construct validity for the instrument did exist. The researcher measured constructs with both structured and unstructured questions and integrated the results to bring a better description of the antiretroviral therapy program.

Face validity refers to the extent to which a measuring instrument looks as though it is measuring what it purports to measure (Polit & Beck 2012:728). The researcher conducted a pre-test for both the quantitative and qualitative strands of the study. The
results were analysed using Statistical Package for the Social Sciences (SPSS version 23) and they showed an alignment with the objectives of the study.

Criterion related validity is described in Polit and Beck (2012:724) as “the degree to which scores on an instrument are correlated with some external criterion”. The authors further explain that of importance is whether the instrument is a useful measure of other behaviours, experiences or conditions (Polit & Beck 2012:337). To ensure criterion related validity the researcher set a criterion of staffing against:

- Number of days ART services were offered.
- Number of days PMTCT services were offered.
- Number of patients seen.
- Time spent by patients seeking ART services at the facility.
- Time taken by a patient to consult a registered nurse midwife/clinician.

Reliability is described as the consistency or dependability with which an instrument measures an attribute (Polit & Beck 2012:741). Whilst reliability has concepts of stability, internal consistency and equivalence, in this study the researcher used internal consistency to ensure reliability. Internal consistency refers to the degree to which all objects on an instrument measure the same variable (Brink 2009:165). Cronbach’s Alpha coefficient was used to establish internal consistence in the quantitative data collection instrument and it was found to be 0.785 indicating a good level of internal consistency of the instrument with the sample used (see Appendix 6a).

3.10.2 Trustworthiness in the qualitative strand

According to Polit and Beck (2012:745), trustworthiness is assurance that qualitative researchers have in their data, assessed using criteria of credibility, transferability, dependability, confirmability and authenticity. In addressing credibility investigators demonstrate that a true picture of the phenomenon under study is presented, in transferability researchers provide sufficient detail of the context of fieldwork for a reader to be able decide whether the prevailing environment is similar to another situation with which they are familiar and whether the findings can be applied in another setting, in dependability researchers strive to enable future researchers to repeat the same study and to meet confirmability, researchers show that results emerge from the
data and not their own predispositions (Shenton 2004: 63). The researcher used the following strategies to ensure trustworthiness:

*Credibility* is described by Polit and Beck (2012:724) as confidence in truth of data and clarifications of them. It is explained as a demonstration that the enquiry was conducted in a manner as to ensure that the subject was accurately identified and described (de Vos et al 2009:346).

Sufficient time during data collection was invested to ensure an in-depth understanding of the participants’ experiences and perceptions. The researcher recorded the participants’ demeanor and behaviors during discussions and thoroughly described the interview context. Probing was used during the interview process to allow the researcher to record information that was true from the participants. On an on-going basis, the researcher reflected on biases, preferences and preconceptions and took her own prejudices and perspectives into account. Participants were given the opportunity to decide whether or not to participate in the study without any coercion.

*Dependability* refers to the constancy of data over time and over conditions and the researcher attempts to account for these variations (de Vos et al 2009:346). Four (4) focus group discussions were conducted in this study. The researcher also returned to the first groups of participants to verify their responses. The researcher used a digital recorder of good quality and transcribed the data verbatim to enable accurate capturing of the interviews. The researcher gave a description of the planning and execution of the study and further described the advantages and challenges of the methods used in this study.

*Confirmability* is the potential similarity between two or more independent people about the data accuracy, relevance or significance (Polit & Beck 2012:585). It guarantees that the findings conclusions and recommendations are supported by the data and that there is an internal agreement between the investigator’s interpretation and the actual evidence (Brink 2009:118).

The interview transcripts were reviewed by both the researcher and supervisor to confirm the ideas or themes developed on the qualitative strand. The researcher also developed a code book which was referred to and used consistently during the coding process. The researcher also used a third independent co-coder. The researcher gave
a description of the research process used and how the research results emerged from the experiences, views and perceptions of the participants of the study.

*Transferability* is the degree to which the findings can be transferred to or have applicability in other settings or groups (Polit & Beck 2012:585). The researcher gave a detailed vivid description of the research context, the people who participated in the study, experiences and processes which were observed during the inquiry. Furthermore, four (4) focus groups discussions were conducted in this study using the same research context. The number and lengths of the data collection sessions and the time period over which data was collected were also described.

### 3.11 ETHICAL CONSIDERATIONS

According to Polit and Beck (2012:726), ethics is ‘a system of moral values concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants’. Emanuel et al (2004: 930-936) provided benchmarks for ethical research that were used to guide the ethical principles in this study and include collaborative partnership, social value, scientific validity, fair selection of study population, favorable risk-benefit ratio, independent review, informed consent and respect for recruited participants and study communities.

#### 3.11.1 Collaborative partnership

Collaborative partnership between policy makers and communities helps to minimize the possibilities of exploitation by determining that a developing country determines for itself whether the research is acceptable and responsive to the community’s health problems (Emanuel et al 2004: 932). This principle is supported by six benchmarks which are:

- Partners representation

The researcher obtained ethical clearance from the Ethics and Higher Degrees Committee of the Department of Health Studies in the College of Human Sciences at the University of South Africa (UNISA) (see Annexure 1). The researcher then sought permission to conduct the study from the Ministry of Health in Lesotho (see Appendixes 7a and 7b) and permission was granted (see Annexures 2a and 2b). The researcher then sought permission to conduct the study from partners of the Ministry of Health being the District Health Management Team (see Appendix 7c) and CHAL (see
Appendix 7d), Maseru City Council (see Appendixes 7e and 7f) and permission was granted (see Annexures 3 and 4).

- Collaboration sharing responsibility for assessing the importance of the health problem and the value of the research to the community for planning and conducting the study, disseminating the results and ensuring that they are used for health improvements.

Permission to conduct the study was sought from the Ministry of Health in Lesotho (see Appendixes 7a and 7b) and permission was granted (see Annexures 2a and 2b) and from partners of the Ministry of Health being the District Health Management Team (see Appendix 7c) and CHAL (see Appendix 7d), Maseru City Council (see Appendixes 7e and 7f) and permission was granted (see Annexures 3 and 4). It is a requirement that results of the study are reported back to all stakeholders including participants. Hence results of this study shall be disseminated to the Ministry of health in Lesotho and all stakeholders thereof once the study has been finalized.

- Recognition of and respect for the host communities distinctive values, culture and social practices

Participants voluntarily decided whether or not to participate in the study. They were also allowed to ask questions, refuse to give information or withdraw from the study altogether. There were no implicit or explicit threats (coercion) of penalty from failing to participate or excessive rewards from agreeing to participate. The researcher respected the choices made by the participants to avoid coercion.

- Minimization of disparities between researchers, sponsors and the host community

Virtues of sensitivity, courtesy, respect and patience were applied during contact periods with the participants. All confidentiality agreements with participants were honored. The researcher treated subjects who declined to participate or withdraw from the study in a non-prejudicial manner. All data provided by the participants was maintained in strict confidence. The researcher negotiated with the health facility manager and participants for the use of a convenient private room.

- Fair benefits to the host community from the conduct and or results of the study

All data was collected by the researcher. Vigilant attention and sensitivity was given to the psychological consequences of participating in the study as they are usually subtle
during the focus group discussions. The researcher reassured participants that all the information they provided would be treated confidentially and their names would not be used at any stage of the research process. Hence any of information they provided was not to be used against them in the seeking of health care services or their employment status on part of the registered nurses/midwives/clinicians. Participants were encouraged to report any feelings of insecurity and the researcher did not hesitate to address them and/ or discontinue the exercise.

- Fair distribution of tangible and intangible rewards of research amongst partners. It is of importance that participants are informed of the benefits of conducting the research study. The evaluation tool used to assess the ART program was to be recommended to inform planning of the ART program at each clinic and eventually the country as a whole. The study shall benefit:
  o Policy-makers to improve the implementation processes involved in the ART program.
  o Partners currently assisting in the propagation of the ART program to be able to understand the actual impact their assistance has during the provision of services.
  o Patients to be able to receive faster and more effective services.
  o Health care professionals, especially registered nurses, to effectively plan implementation of the ART program.

3.11.2 Social value
This is achieved through generation of knowledge that can lead to improvements in health. Social value avoids unnecessary exposure of participants to risks and avoids wasting of resources (Emanuel et al 2004:932). This principle is achieved through four benchmarks:
  - Delineate prospective beneficiaries of the study
This study shall be of benefits to various stake holders namely policy-makers, partners currently assisting in the propagation of the ART program, patients to be able to receive faster and more effective services and health care professionals, especially registered nurses.

- Potential value of the research to prospective beneficiaries should be outlined
This study is intended to benefit:
Policy-makers to improve the implementation processes involved in the ART program.

Partners currently assisting in the propagation of the ART program to be able to understand the actual impact their assistance has during the provision of services.

Patients to be able to receive faster and more effective services.

Health care professionals, especially registered nurses, to effectively plan implementation of the ART program.

- Devise strategies to disseminate results in appropriate languages and formats to key stakeholders including the local community, health policy makers, health care providers and international health care organizations

On an annual basis the Ministry of Health in Lesotho conducts at least two health research forums during which the researcher intends to disseminate findings of the study in the form of oral presentations. It is also a scholarly requirement for the researcher to publish findings of this study in peer reviewed journals (locally, regionally and internationally) and this shall be another form of disseminating the research results. The researcher shall produce brochures written in both English and Sesotho which shall be returned to all district health facilities that took part in this study to ensure that such communities are informed of the results of the study.

- Supplementation of the existing health system through provision of additional resources, equipment, medications or training

Upon dissemination of the results, lobbying shall be used as a key strategy to seek more resources required in the implementation of the ART program from key stakeholders including the Ministry of Health and other private entities involved in the propagation of the program.

3.11.3 Scientific validity

Reliable and valid research data that can be interpreted and used by specific beneficiaries of the research is of social value (Emanuel 2004:933). Scientific validity is fulfilled by the following benchmarks;

- Appropriate design so that results are useful in the context of the health problem

The mixed methods convergent parallel research design was used to address pertinent questions of this study. The researcher collected both qualitative data through focus
group discussions and quantitative data through a cross sectional survey. Data was also collected from different samples and they included registered nurses involved in the provision of ART services and patients who were HIV positive and sought ART services. Results of the study shall be used to inform current practices in the provision of ART services and areas requiring improvement.

- Study design realizes research objectives (i) without denying health care services that participants require or (ii) providing services that are not feasible in the context of the country`s health care system

The objectives of this study sought to determine the current practices of services delivery in the ART program and to describe experiences of both registered nurses and patients on the ART program with the intention of developing an evaluation tool that can be used to evaluate the program on a regular basis. In this process services that were understood to be necessary but not feasible due to challenges of the complex health care system were identified and will be communicated to various stake holders with the aim of their revitalization in a more sustainable manner.

- The study must be designed to be feasible given the social, political and cultural context

This study was conducted within the context of primary health care where ART services are provided. A pre-test was conducted to ascertain feasibility of the study. For the quantitative pre-test the researcher identified 8 registered nurses from PHC settings in Maseru district not selected to take part in the study to complete the questionnaire and they were not be part of the actual study. Data obtained from the pre-test was analysed using Statistical Package for Social Sciences (SPSS version 23) and presented to the supervisor. The revised data collection tool was also presented to the supervisor and used in the actual study. The researcher also identified a focus group of registered nurses/midwives/clinicians not included in the quantitative strand to take part in a focus group discussion for the qualitative strand of the study. The same concepts were addressed in both the quantitative and qualitative data collection so that the two (2) data sets could be compared or merged. Data was analysed using constant comparison analysis and also presented to the supervisor.
3.11.4 Fair Subject selection

This principle addresses fair selection of target villages, tribes or city neighborhoods from which individual participants will be selected (Emanuel et al 2004: 933). Fair subject selection is addressed by the following benchmarks;

- Study population must be selected to ensure valid science

All ten districts of Lesotho were envisaged to take part in the study however only six of them responded positively in allowing the study to be conducted. With a total of one hundred and sixty (160) health centre facilities within Lesotho and an average of three registered nursing personnel working at each facility, in total there were four hundred and eighty (480) registered nursing staff serving the health centre facilities. With reference to the Raosoft calculator, using a confidence level of 95%, allowing a 5% error margin and a 50% response rate, a sample size of two hundred and fourteen (214) was found appropriate to adequately represent the population under study (www.raosoft.com/samplesize.html). For the qualitative strand of the study four (4) focus group discussions were conducted (two for registered nurses and 2 for ART patients) and the smallest focus group had three (3) participants and the largest had seven (7) participants.

- Minimizing risk to the research study

In this study minimizing risk to the research study was achieved by seeking permission to conduct the study in the country from the Ministry of Health and its partners. This ensured common understanding on the importance of the study in determining the current practices of the ART program. Scientific rigor of the study was maintained both in the qualitative and quantitative data collection processes.

- Collaborative partnership with the community to ensure social value

The study and all its procedures were explained to all participants before data collection. Study participants included individuals directly involved in the ART program being registered nurses and patients who were recipients of care. All participants showed understanding of the importance of the study as they already had been facing various challenges which needed to be explored.

- Determination of vulnerability of communities or groups within the community

Only codes were used to identify study participants in the information they gave. The researcher informed the participants that the information they gave would be treated in strict confidence. A confidentiality agreement was signed by participants involved in
focus group discussions (see Appendix 4). All the research data was stored securely in a lockable cupboard located in the researcher’s secure office and access made only to the researcher and relevant institutions until completion and approval of the research reports. Raw data shall be destroyed using a shredder at least three (3) years after completion of the study. Since the HIV positive patients were recruited as they came in for their regular ART services, anonymity could not be guaranteed. However, all study participants were protected by not recording their names and de-linking information they provided from their identification and files. The researcher assured groups of participants that the information they provided or their participation would not be used against them in any way and their situation would not be exploited for personal or financial gains.

3.11.5 Favorable risk benefit ratio
This principle explains that only benefits that accrue to participants from interventions necessary to achieve research objectives or those deriving from the knowledge to be gained by the research must be used to justify risks to respondent (Emanuel et al 2004: 934). This principle is supported by the following benchmarks;

- Risk benefit ratio must be favorable in the individuals’ context
The researcher fully disclosed aspects of the study, the individual’s right to refuse participation, the researcher’s responsibility and the likely risks and benefits to both the participants and health facility staff. Vigilant attention was given to the psychological consequences of participating in the study and participants were reassured that all the information they provided would be kept in strict confidence and only used for the purposes of the study.

- Favorable risk benefit ratio for the community
This study developed a tool that could be used to evaluate the ART program in PHC settings of Lesotho. Results from this study shall benefit policy makers to improve implementation processes of the ART program, partners currently assisting in the propagation of ART services to be able to understand the actual impact of their assistance, patients to be able to receive faster and more effective services and health care professionals, especially registered nurses, to effectively plan implementation of the ART program.
3.11.6 Independent review

This principle explains the importance of independent ethical review of all clinical research protocols and other regulatory approvals from pertinent stake holders (Emanuel et al 2004: 934). Ethical clearance was obtained from the Ethics and Higher Degrees Committee of the Department of Health Studies in the College of Human Sciences at the University of South Africa (UNISA) (see Annexure 1). The researcher then sought permission to conduct the study from the Ministry of Health research and Ethics Committee in Lesotho (see Appendixes 7a and 7b) and permission was granted (see Annexures 2a and 2b). The researcher then sought permission to conduct the study from partners of the Ministry of Health being the District Health Management Team (see Appendix 7c) and CHAL (see Appendix 7d), Maseru City Council (see Appendixes 7e and 7f) and permission was granted (see Annexures 3 and 4).

3.11.7 Informed Consent

This principle explains that informed consent must be applied as an ethical principle in all clinical research (Emanuel et al 2004: 934). It is supported by five benchmarks as below;

- The local community must help in recruitment procedures

Permission to conduct the study was sought from respective governing authorities of PHC facilities being the Ministry of Health, District Health Management Teams, CHAL and Maseru City Council. Upon approval the researcher was advised by the respective authorities to recruit registered nurses during their monthly PHC meetings as some of the health centre facilities were not accessible due to the topography of the country whilst patients were to be recruited during their regular ART clinic again due to the inaccessibility of some of the villages.

- Disclosure of information must be sensitive to the local context

The researcher fully disclosed aspects of the study, the individuals` right to refuse participation the researcher`s responsibility and the likely risks and benefits to both the health facility staff and patients. The consent form was also written in English for the registered nurses and both in English and Sesotho for the patients.
• Spheres of consent ranging from village elders to leaders and extended families or household heads must be considered
Permission to conduct this study was sought and obtained from District Health Management Teams which are responsible for the PHC facilities. Individuals participants of the study were above 18 years and hence provided consent for participation in the study.

• Consent procedures must be acceptable within the local community
Participants were asked to give written consent of their voluntary participation in the study. The researcher also negotiated for the use of a convenient private room for the completion of questionnaires and focus group discussions.

• Ensuring respondent are aware of their ability to refuse or withdraw from the study
Participants voluntarily decided whether or not to participate in the study. They were allowed to ask questions, refuse to give information or withdraw from the study altogether. There were no implicit or explicit threats (coercion) of penalty from failing to participate or excessive rewards from agreeing to participate. The researcher respected the choices made by participants to avoid coercion. Participants were encouraged to disclose any feelings of insecurity during the course of the interview. In this study no insecurities were reported.

3.11.8 Respect for study participants and communities
This principle explains that researchers have ongoing obligation to participants, former participants and communities (Emanuel et al 2004: 935) and is supported by the following benchmarks:

• Maintenance of confidentiality
In this study only codes were used to identify study participants and all information was treated in strict confidence and only used for purposes of the study. All research data was stored in a lockable cupboard in a secured office of the researcher and access made only to the researcher and relevant institutions until completion and approval of the research reports. All study participants were protected by not recording their names and de-linking information they provided from their identification files.
• Respect for participants of the study
The researcher fully disclosed aspects of the study, the individual’s right to refuse participation, the researcher’s responsibilities and the likely risks and benefits to both the participants and health facility staff.

• Disclosure of new information pertaining to the study
No new information pertaining to the risks and or benefits arose in this study. However the researcher constantly reminded participants of the purpose of the study and its benefits and likely risks during the course of data collection.

• Attending to health problems not related to the study
All participants especially patients were advised to continue to seek medical care despite the challenges they were encountering in receiving ART services.

• Implementing strategies to disseminate research information to participants and all stake holders
On an annual basis the Ministry of Health in Lesotho conducts at least two health research forums during which the researcher intends to disseminate findings of the study in the form of oral presentations. The researcher shall produce brochures written in both English and Sesotho which shall be returned to all district health facilities that took part in this study to ensure that such communities are informed of the results of the study.

3.12 DATA ANALYSIS

Creswell (2003:220) explains that data analysis in mixed method studies relates to the type of design chosen and involves both quantitative (descriptive and inferential numeric analysis) and qualitative (descriptive and thematic text or image analysis). Quantitative data was analysed using SPSS (23) and a professional statistician was engaged in the process. Kruskal Wallis ANOVA was used to analyze quantitative data which was presented in diagrams and tables. Kruskal Wallis ANOVA was found to be most suitable as the samples were not randomly selected.

Qualitative data was analysed using constant comparison analysis. As explained by Leech and Onwuegbuzie (2007:565) it is the most used type of analysis developed by
Glaser and Strauss (1967) (further described by Strauss & Corbin 1998) which involves reading the entire set of data, chunking the data into smaller meaningful parts, labelling each chunk with a descriptive title or code and identifying and documenting a theme based on each title. Constant comparison can be undertaken deductively in which codes are identified prior to analysis and then looked for in the data, inductively in which codes emerge from the data or abductively in which codes emerge iteratively (Leech & Onwuegbuzie 2007: 565). Originally constant comparison analysis was developed to analyze data that were collected over a series of rounds which led to theoretical sampling which involves the sampling of additional people in order to develop emergent themes, to assess adequacy, relevance, meaningfulness of themes, to refine ideas and to identify conceptual boundaries (Leech & Onwuegbuzie 2007: 565). It has however been since modified to be used to analyze data collected in one round of interviews (Leech & Onwuegbuzie 2007: 565). Chapter 4 gives a detailed description of the data analysis procedures followed in this study.

3.13 CONCLUSION

This chapter presented the research and methodology, population, sampling procedures, instruments and data collection methods implemented in this study. This chapter also gave a vivid description of the ethical considerations and principles followed to avoid a breach of human rights of the study participants. The following chapter discusses the data analysis procedures used in this study.
CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter focuses on the presentation and description of the results. The purpose of this study was to evaluate the antiretroviral therapy program in the Primary Health Care settings of Lesotho. A convergent parallel mixed methods design was used. This is a type of design in which both quantitative and qualitative data are collected and analysed during the same phase of the research process and merging of the two sets of results occurs into an overall interpretation (Creswell & Plano Clark 2011:79).

In this study quantitative data was used to describe the ART program in the PHC setting. Qualitative data was used to explore and describe experiences of both registered nurses/midwives/nurse clinicians and patients on the ART program in the PHC setting. Both sets of data were used to bring a greater and comprehensive assessment of the antiretroviral program and its evaluation.

4.2 QUANTITATIVE RESULTS

Statistical Package for the Social Sciences (SPSS version 23) was used to analyse quantitative data. Data was captured as per variables on the questionnaire and cleaned before it was analysed. A statistician was consulted during the analysis phase and both descriptive and analytic measures were used. A sample size of one hundred and ninety seven participants out of the expected two hundred and fourteen responded to the questionnaire. The compliance rate for quantitative aspect of the study was therefore 92%.

There were two objectives for the quantitative aspect of the study:

- Describe ART services offered in PHC settings.
- Determine if staffing patterns had an association with:
- Number of days ART services were offered.
- Number of days PMTCT services were offered.
- Number of patients seen.
- Time spent by patients seeking ART services at the facility.
- Time taken by a patient to consult a registered nurse midwife/clinician.

### 4.2.1 Site characteristics

This section describes the characteristics of the study sites according to districts, health centre, facility ownership and type of facility.

#### Districts

The study was conducted in six (6) districts out of the ten (10) that are found in Lesotho. The other four district either did not provide permission for the study to be conducted or were inaccessible due to the topography of Lesotho. The district of Maseru was divided into Maseru urban and Maseru rural due to its large size and variability of the PHC settings. Maseru urban consisted of PHC facilities within the metropolitan area and Maseru rural consisted of PHC facilities located in rural areas but still under management of the Maseru District Health Management Team. Figure 4.1 shows the distribution of participants from each district. Twenty five percent (n=50) of the participants were from Maseru urban, 27% (n=52) from Maseru Rural, 9% (n=17) from Thaba Tseka, 13% (n=26) from Mafeteng, 6% (n=12) from Qacha’s Nek, 10% (n=20) from Berea and 10% (n=20) from Butha Buthe. The total number of participants was 197 from the six districts. Only 70% (n=137) of the participants provided information on the names of the PHC facilities.
Figure 4.1: Proportion of participants per district (n=197)

Health centres

In total, quantitative data was collected from 40% (n=64) of the PHC settings across the country. Data collected from Maseru district was from 42% (n=25) of PHC facilities and 31% (n=32) of the participants did not provide information on the facility name. Data collected from Thaba Tseka was from 72% (n=13) PHC facilities and 24% (n=4) of the participants did not providing information on the facility name. Data collected from Mafeteng was from 45% (n=9) PHC facilities and 42% (n=11) of the participants did not provide information on the facility name. Data collected from Qacha’s Nek was from 27% (n=3) PHC facilities and 33% (n=4) of the participants did not provide information on the facility name. Data collected from Berea was from 26% (n=5) PHC facilities and 25% (n=5) of the participants did not provide information on the facility name. Data collected from Butha Buthe was from 64% (n=9) of the PHC facilities and 20% (N=4) of the participants did not provide information on the facility name. Figure 4.2 shows the proportion of health centres used in each district.
Facility ownership

Information on the ownership of the facility was also elicited. Thirty five percent (n=68) of the participants reported that their facilities were owned by the Government of Lesotho. Fifty one percent (n=101) of the participants reported that their facilities were church owned, 8% (n=16) of the participants reported that their facilities were privately owned, 2% (n=4) of the participants reported that their facilities were owned by the municipality and 4% (n=8) of the participants did not provide information on the ownership of their facilities. Figure 4.3 shows the ownership of facilities.
Facility type

The researcher also elicited information on types of facilities that were offering PHC services. Eighty nine percent (n=175) of the participants reported that their facilities were health centre facilities. Nine percent (n=18) of the respondents reported that their facilities were district hospitals. Figure 4.4 shows information on the type of facility from all the participants who participated in the study.

![Facility Type Chart](image)

Figure 4.4: Facility type

4.2.2 Sample characteristics

This section describes the study sample according to age, gender, marital status, occupation title, number of years at facility and number of years in clinical practice.

Age

Sixty four percent (n=126) of the participants provided information on their age and 36% (n=71) of the participants did not provide information on their age. The age range was 39 with a minimum of 23 and a maximum of 62 years. The mean age of the participants was 36 years (CI=34.8-38.3) and the standard deviation was 9.8. Table 4.1 shows the frequency distribution of the age of participants. Twenty nine percent (n=29) of the participants’ were aged between 20-29 years, 43% (n=54) of the participants’ were aged between 30-39 years, 14% (n=18) of the participants’ were aged between 40-49 years, 11% (n=14) of the participants’ were aged between 50-59 years and 3% (n=4) of
the participants were aged between 60-69 years. Table 4.1 shows the age distribution of the participants.

<table>
<thead>
<tr>
<th>Age groups</th>
<th>True limits</th>
<th>Mid-age (×)</th>
<th>Frequency (n)</th>
<th>∑f×</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>19.5-29.5</td>
<td>24.5</td>
<td>36</td>
<td>882</td>
<td>29</td>
</tr>
<tr>
<td>30-39</td>
<td>29.5-39.5</td>
<td>34.5</td>
<td>54</td>
<td>1863</td>
<td>43</td>
</tr>
<tr>
<td>40-49</td>
<td>39.5-49.5</td>
<td>44.5</td>
<td>18</td>
<td>801</td>
<td>14</td>
</tr>
<tr>
<td>50-59</td>
<td>49.5-59.5</td>
<td>54.5</td>
<td>14</td>
<td>763</td>
<td>11</td>
</tr>
<tr>
<td>60-69</td>
<td>59.5-69.5</td>
<td>64.5</td>
<td>4</td>
<td>258</td>
<td>3</td>
</tr>
</tbody>
</table>

|        | ∑n = 126    | ∑f× = 4567  | 100           |

Mean (\(\bar{x}\)) = \(\frac{\sum f\times}{n}\) = \(\frac{4567}{126}\) = 36 (CI=34.8-38.3)

Standard deviation = 9.8

Gender

Information on the gender of the participants was also elicited. Ninety nine percent (n=195) of the participants provided information on their gender. Seven percent (n=14) of the participants were males and 92% (n=181) of the participants were females. Figure 4.5 shows information of the gender of the participants who took part in the study.

![Figure 4.5: Gender of participants (n=197)](image)
Marital status

Information on the marital status of the participants was also elicited. Ninety eight percent (n=193) of the participants provided information on their marital status. Twenty percent (n=39) of the participants were single, 69% (n=136) of the participants were married, 6% (n=12) of the participants were widowed, 3% (n=6) of the participants were separated. Figure 4.6 shows the marital status of the participants.

![Figure 4.6: Marital status of participants (n=197)](image)

Occupational title

Information on the occupation title of the participants was also elicited. Nine percent (n=17) of the participants were registered nurses, 72% (n=142) of the participants were registered nurses midwives and 19% (n=37) of the participants were nurse clinicians as indicated in figure 4.7.

![Figure 4.7: Occupation title of participants (n=196)](image)
The variable was analysed using Kruskal Wallis ANOVA to determine if the occupation title was associated with the number of ART (including PMTCT) patients seen at the facility, time spent seeking and providing ART services, number of days ART and PMTCT services were offered at facilities across the districts. At the 0.05 significance level it was concluded that there was no statistically significant difference across the districts in the number of ART (including PMTCT) patients seen at the facilities (p=0.062; α=0.05), time spent seeking ART services (p=0.243; α=0.05), time spent providing ART services (p=0.214; α=0.05), number of days ART services were offered at facilities (p=0.093; α=0.05) and number of days PMTCT services were offered at facilities (p=0.270; α=0.05). Occupation title was therefore seen not to have an association with any of the variables.

**Number of years at facility**

Information on the number of years the participants spent at their facilities was also elicited. Seventy nine percent (n=156) of the participants provided information on the number of years spent at the facility. Eighty two percent (n=128) of the participants spent between 1 to 5 years at their facilities and 12% (n=19) of the participants spent between 6 to 10 years at their facilities. The range was 29 with a minimum of 0 years and the maximum 29 years. The mean number of years spent at the facility was 4.6 years (CI=3.5-4.9) and the standard deviation was 4.7.

This variable was analysed using Kruskal Wallis ANOVA across the districts and at the 0.05 significance level the test was significant. It was concluded that the number of years spent in clinical practice by the participants differed significantly across the districts (p=0.01; α=0.05). Table 4.2 shows the number of years participants spent at their facilities.
Table 4.2: Number of years at facility (n=156)

<table>
<thead>
<tr>
<th>Groups</th>
<th>True limits</th>
<th>Frequency (n)</th>
<th>Mid-year (x)</th>
<th>f×</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>0.5-5.5</td>
<td>128</td>
<td>3</td>
<td>384</td>
<td>82.1</td>
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<tr>
<td>6-10</td>
<td>5.5-10.5</td>
<td>19</td>
<td>8</td>
<td>152</td>
<td>12.1</td>
</tr>
<tr>
<td>11-15</td>
<td>10.5-15.5</td>
<td>3</td>
<td>13</td>
<td>39</td>
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<tr>
<td>16-20</td>
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<td>18</td>
<td>18</td>
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<td>21-25</td>
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<td>23</td>
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<td>2.6</td>
</tr>
<tr>
<td>26-30</td>
<td>25.5-30.5</td>
<td>1</td>
<td>28</td>
<td>28</td>
<td>0.6</td>
</tr>
<tr>
<td>Σn = 156</td>
<td>Σf× = 713</td>
<td></td>
<td></td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

Mean (μ) = Σf×/n = 713 / 156 = 4.6 (CI=3.5-4.9)

Standard Deviation = 4.7

Kruskal Wallis ANOVA: p=0.01 α=0.05

Number of years in clinical practice

Information on the number of years participants spent in clinical practice was also elicited. Seventy six percent (n=149) of the participants provided information on the number of years they have spent working in clinical practice. Forty four percent (n=65) of the participants spent between 1-5 years in clinical practice, 23% (n=39) of the participants spent between 6-10 years in clinical practice and 30% of the participants (n=45) spent between 11-35 years in clinical practice. The minimum number of years was less than one year and the maximum number was 33 years. The mean years spent in clinical practice was 9.7 (CI=8.5-11.4) years and the standard deviation was 8.

The variable was analysed using Kruskal Wallis ANOVA and at the 0.05 significance level the test was not significant. It was concluded that there was no statistically significant difference in the number of years spent in clinical practice across the districts (p=0.73;α=0.05). Table 4.3 shows the number of years spent in clinical practice by the participants.
Table 4.3: Number of years spent in clinical practice (n=149)

<table>
<thead>
<tr>
<th>Years in groups</th>
<th>True limits</th>
<th>Frequency (n)</th>
<th>mid-year (x)</th>
<th>fx</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>0.5-5.5</td>
<td>65</td>
<td>3</td>
<td>195</td>
<td>44</td>
</tr>
<tr>
<td>6-10</td>
<td>5.5-10.5</td>
<td>39</td>
<td>8</td>
<td>312</td>
<td>26</td>
</tr>
<tr>
<td>11-15</td>
<td>10.5-15.5</td>
<td>10</td>
<td>13</td>
<td>130</td>
<td>7</td>
</tr>
<tr>
<td>16-20</td>
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<td>18</td>
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<td>21-25</td>
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<td>26-30</td>
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<td>28</td>
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<tr>
<td></td>
<td></td>
<td>Σn = 149</td>
<td></td>
<td>Σfx = 1442</td>
<td>100</td>
</tr>
</tbody>
</table>

Mean ($\bar{x}$) = $\frac{\sum fx}{n}$ = $\frac{1442}{149}$ = 9.7 (CI=8.5-11.4)

Standard deviation = 8

Kruskal Wallis ANOVA: p=0.73 α=0.05

Staffing

Information on the staffing patterns of facilities was also collected from the participants.

Medical doctors

Seventy eight percent (n=152) of the participants reported that they had no medical doctors at their facilities and 22% (n=45) of the participants reported that they had between one to six medical doctors at their facilities. Figure 4.8 shows the number of Doctors at facilities.

Figure 4.8: Number of doctors at facilities (n=197)
Nurse clinicians

Forty three percent (n=84) of the participants reported that they did not have a nurse clinician at their facilities and 55% (n=107) of the participants reported that they had one nurse clinician at their facilities. Figure 4.9 shows the number of nurse clinicians at facilities.

![Figure 4.9: Number of nurse clinicians (n=191)](image)

Registered nurses

Seventy nine percent (n=155) of the participants reported that they did not have general registered nurses at their facilities, 11% (n=22) of the participants reported that they had one general registered nurse at their facilities and 10% (n=20) reported that they had between two and six registered nurses at their facilities. Figure 4.10 shows the number of general registered nurses.
Four percent (n=9) of the participants reported that they had no registered nurse midwives at their facilities, 13% (n=26) of the participants reported that they had one registered nurse midwife at their facilities, 40% (n=78) of the participants reported that they had two registered nurse midwives at their facilities, 22% (n=44) of the participants reported that they had three registered nurse midwives at their facilities, 21% (n=40) of the participants reported that they had between four and thirty registered nurse midwives at their facilities. Figure 4.11 shows the number of registered nurse midwives.
Nurse assistants

Six percent (n=12) of the participants reported that they had no nurse assistants at their facilities, 13% (n=25) of the participants reported that they had one nurse assistant at their facilities, 58% (n=115) of the participants reported that they had two nurse assistants at their facilities, 10% (n=20) of the participants reported that they had three nurse assistants at their facilities, 13% (n=25) of the participants reported that they had between four and thirty five nurse assistants at their facilities, Figure 4.12 shows the number of nurse assistants at facilities.
Ward aids

Participants (75%; n=148) reported that they did not have any ward aids at their facilities, 6% (n=11) of the participants reported that they had one ward aid at their facilities, 6% (n=11) of the participants reported that they had two ward aids at their facilities, 9% (n=17) of the participants reported that they had three ward aids at their facilities, 4% (n=10) of the participants reported that they had between four and 10 wards aids at their facilities. Figure 4.13 shows the number of ward aids at facilities.

Figure 4.13: Number of wards aids at facilities (n=197)

Lay counsellors

Participants (9%; n=17) reported that they did not have any lay counsellors working at their facilities, 5% (n=9) of the participants reported that they had one lay counsellor working at their facilities, 18% (n=35) of the participants reported that they had two lay counsellors working at their facilities, 15% (n=30) of the participants reported that they had three lay counsellors working at their facilities, 18% (n=35) of the participants reported that they had four lay counsellors working at their facilities, 17% (n=34) of the participants reported that they had five lay counsellors working at their facilities and 17% (n=37) of the participants reported that they had between six and twelve lay counsellors working at their facilities. Figure 4.14 shows the number of lay counsellors at facilities.
Professional counsellors

Participants (80%; n=158) reported that they did not have any professional counsellors working at their facilities, 16% (n=32) of the participants reported that they had one professional counsellor working at their facilities and 4% (n=7) of the participants reported that they had between two and three professional counsellors working at their facilities. Figure 4.15 shows the number of professional counsellors.
Data collectors

Participants (94%; n=185) reported that they did not have a data collector at their facilities and 6% (n=12) of the participants reported that they had one data collector at their facilities. Figure 4.16 shows the number of data collectors.

![Figure 4.16: Number of data collectors at facilities (n=197)](image)

Cleaners

Participants (11%; n=22) reported that they did not have cleaners at their facilities, 54% (n=106) of the participants reported that they had one cleaner at their facilities, 14% (n=28) of the participants reported that they had two cleaners at their facilities, 11% (n=22) of the participants reported that they had three cleaners at their facilities and 10% (n=19) of the participants reported that they had between four and eighteen cleaners at their facilities. Figure 4.17 shows the number of cleaners at facilities.
As indicated in figure 4.18, 36% (n=71) of the participants reported that they did not have gardeners at their facilities, 49% (n=96) of the participants reported that they had one gardener at their facilities and 15% (n=30) of the participants reported that they had between two and seven gardeners at their facilities.
Security guards

According to figure 4.19, 15% (n=30) of the participants reported that they did not have a security guard at their facilities, 46% (n=90) of the participants reported that they had one security guard at their facilities, 25% (n=49) of the participants reported that they had two security guards at their facilities and 14% (n=28) of the participants reported that they had between three and ten security guards at their facilities.

![Figure 4.19: Number of security guards at facilities (n=197)](image)

4.2.3 Health services offered at facilities

Stanhope and Lancaster (2012:197) described 17 interventions which encompass the intervention wheel framework and they include surveillance, disease and other health investigations, outreach, case finding, referral and follow up, case management, delegated functions, health teaching, consultation, counselling, collaboration, coalition building, community organising, advocacy, social marketing, policy development and enforcement. In this study fourteen (14) interventions were adopted and used in this study. Table 4.4 below shows the relationship of the interventions used, research objectives and data collection instrument.
### Table 4.4: Relationship of the concepts used, research objectives and data collection instrument

<table>
<thead>
<tr>
<th>Quantitative research objectives</th>
<th>Framework interventions</th>
<th>Questions on instrument</th>
<th>Qualitative research objectives</th>
</tr>
</thead>
</table>
| • Describe ART services offered in PHC settings  
  • Determine if staffing patterns had an association with:  
  o Number of days ART services are offered.  
  o Number of days PMTCT services are offered.  
  o Number of patients seen.  
  o Time spent by patients seeking ART services at the facility.  
  o Time taken by a patient to consult a registered nurse midwife/clinician. | Surveillance | Under five clinic, ART continuation, TB continuation | Number of patients seen per week  
 Number of days ART services offered  
 Number of days PMTCT services offered  
 Average time spent seeking ART services  
 Average time spent consulting a nurse  
 Availability of ARVs  
 Availability of other drugs  
 Staff adequacy  
 Staff qualified and competent to provide ART services  
 Adequacy of resources and equipment  
 Provision of adequate and efficient services  
 Services routine, accurate and efficient to allow accessibility  
 Time spent allows patients to receive all services  
 Documentary evident is adequate and accurate  
 Patients satisfied with ART services | • Explore and describe experiences and views of registered nurse midwives/clinicians on the ART program in the PHC settings.  
 • Explore and describe experiences and views of patients on the ART program in the PHC settings. |
| Screening | Screening, FBC, CD4+, Urea, HB, urea and electrolytes, creatinine clearance | | |
| Case finding | Case finding, contact tracing, outreach | | |
| Case management | ART initiation and continuation, TB initiation and continuation, PMTCT | | |
| Consultation | Consultation services | | |
| Referral and follow-up | Referral and follow up services | | |
| Health teaching | Village teaching, primary and secondary school teaching | | |
| Counselling | Voluntary counselling and testing | | |
| Outreach | Outreach, primary and secondary and village teaching | | |
| Collaboration | Outreach, primary and secondary and village teaching. | | |
| Coalition | Staffing patterns | | |
### Table 4.4: Relationship of the concepts used, research objectives and data collection instrument

<table>
<thead>
<tr>
<th>Quantitative research objectives</th>
<th>Framework interventions</th>
<th>Questions on instrument</th>
<th>Qualitative research objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community organising</td>
<td></td>
<td></td>
<td>Staff is satisfied with ART</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>services offered</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Monitoring and evaluation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>system available</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Suggestions for</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>improvement</td>
</tr>
<tr>
<td>Disease and health investigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advocacy</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In this study, participants were asked about services which were offered at facilities and 100% (n=197) provided responses as shown in table 4.5.

**Screening services**

Participants (91%; n=179) reported that they offered screening services at their facilities and 9% (n=18) reported that they did not provide screening services.

**Contact tracing**

Participants (87%; n=172) reported that contact tracing was offered at their facilities and 13% (n=25) of the participants reported that contact tracing was not offered at their facilities.

**Referral and follow-up**

Participants (88%; n=174) reported that referral and follow up was offered at their facilities and 12% (n=23) reported that referral and follow up was not offered at their facilities.

**Family planning services**

Participants (72%; n=141) reported that family planning was offered at their facilities and 28% (n=56) reported that family planning was not offered at their facilities.

**Creatinine clearance**

Participants (75%; n=148) reported that creatinine clearance was offered at their facilities and 25% (n=49) reported that creatinine clearance was not offered at their facilities.

**Village teaching**

Participants (81%; n=160) reported that village teaching was offered at their facilities and 19% (n=37) reported that village teaching was not offered at their facilities.
PMTCT services

Participants (96%; n=190) reported that PMTCT services were offered at their facilities and 4% (n=7) reported that PMTCT services were not offered at their facilities.

Electrolytes

Participants (42%; n=82) reported that electrolyte services were offered at their facilities and 58% (n=115) reported that electrolyte services were not offered at their facilities.

Full blood count (FBC)

Participants (69%; n=139) reported that full blood count services were offered at their facilities and 31% (n=62) reported that full blood count services were not offered at their facilities.

TB continuation

Participants (91%; n=179) reported that TB continuation services were offered at their facilities and 9% (n=18) reported that TB continuation services were not offered at their facilities.

CD4+ count

Participants (76%; n=149) reported that CD4+ Count services were offered at their facilities and 24% (n=48) reported that CD4+ Count services were not offered at their facilities.

Primary school teaching services

Participants (65%; n=128) reported that primary school teaching services were offered at their facilities and 35% (n=69) of the participants reported that primary school teaching services were not offered at their facilities.
**ART initiation services**

Participants (96%; n=190) reported that ART initiation services were offered at their facilities and 4% (n=7) of the participants reported that ART initiation services were not offered at their facilities.

**Blood urea tests services**

Participants (58%; n=115) reported that blood urea services were offered at their facilities and 42% (n=82) of the participants reported that blood urea services were not offered at their facilities.

**Haemoglobin (HB) tests services**

Participants (91%; n=179) reported that haemoglobin urea services were offered at their facilities and 9% (n=18) of the participants reported that haemoglobin services were not offered at their facilities.

**TB initiation services**

Participants (94%; n=185) reported that TB initiation services were offered at their facilities and 6% (n=12) of the participants reported that TB initiation services were not offered at their facilities.

**Liver function tests services**

Participants (70%; n=137) reported that liver function test services were offered at their facilities and 30% (n=60) of the participants reported that liver function test services were not offered at their facilities.

**Secondary school teaching services**

Participants (53%; n=104) reported that secondary school teaching services were offered at their facilities and 47% (n=93) of the participants reported that secondary school teaching services were not offered at their facilities.
**ART continuation**

Participants (93%; n=184) reported that ART continuation services were offered at their facilities and 7% (n=13) of the participants reported that ART continuation services were not offered at their facilities.

**Outreach services**

Participants (70%; n=138) reported that outreach services were offered at their facilities, 30% (n=58) of the participants reported that outreach services were not offered at their facilities.

**Consultation services**

Participants (93%; n=184) reported that consultation services were offered at their facilities and 7% (n=13) of the participants reported that consultation services were not offered at their facilities.

**Case findings services**

Participants (73%; n=144) reported that case finding services were offered at their facilities and 27% (n=53) of the participants reported that case finding services were not offered at their facilities.

**Voluntary counseling and testing (VCT) services**

Participants (90%; n=177) reported that voluntary counselling and testing services were offered at their facilities and 10% (n=20) of the participants reported that voluntary counselling and testing services were not offered at their facilities.

**Under five clinic services**

Participants (93%; n=184) reported that under five clinic services were offered at their facilities and 7% (n=13) of the participants reported that under five clinic services were not offered at their facilities.
Table 4.5: Responses to services offered at facilities (n=197)

<table>
<thead>
<tr>
<th>Service</th>
<th>Yes %</th>
<th>No %</th>
<th>Service</th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening</td>
<td>91</td>
<td>9</td>
<td>ART initiation</td>
<td>96</td>
<td>4</td>
</tr>
<tr>
<td>Contact tracing</td>
<td>87</td>
<td>13</td>
<td>Blood urea</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Referral &amp; follow-up</td>
<td>88</td>
<td>12</td>
<td>HB</td>
<td>91</td>
<td>9</td>
</tr>
<tr>
<td>Family planning</td>
<td>72</td>
<td>28</td>
<td>TB initiation</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>Creatinine clearance</td>
<td>75</td>
<td>25</td>
<td>Liver function tests</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>Village teaching</td>
<td>81</td>
<td>19</td>
<td>Secondary teaching</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>PMTCT</td>
<td>96</td>
<td>4</td>
<td>ART continuation</td>
<td>93</td>
<td>7</td>
</tr>
<tr>
<td>Electrolytes</td>
<td>42</td>
<td>58</td>
<td>Outreach</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>FBC</td>
<td>69</td>
<td>31</td>
<td>Consultation</td>
<td>93</td>
<td>7</td>
</tr>
<tr>
<td>TB continuation</td>
<td>91</td>
<td>9</td>
<td>Case finding</td>
<td>73</td>
<td>27</td>
</tr>
<tr>
<td>CD4+</td>
<td>76</td>
<td>24</td>
<td>VCT</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>Primary teaching</td>
<td>65</td>
<td>35</td>
<td>Under 5 clinic</td>
<td>93</td>
<td>7</td>
</tr>
</tbody>
</table>

Other services at facilities

As shown in table 4.6, participants (15%; n=29) provided information on other services which were offered at their facilities including teaching at facilities, village health workers education, antenatal clinic, general outpatients, post-natal services and deliveries, counselling and testing, traditional healer teaching cervical cancer screening, voluntary male circumcision and nutrition corner.

Table 4.6: Responses to other services offered at facilities (n=29)

<table>
<thead>
<tr>
<th>Service</th>
<th>% response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Teaching at facility</td>
<td>2</td>
</tr>
<tr>
<td>Village health workers education</td>
<td>1</td>
</tr>
<tr>
<td>ANC, general OPD, PNC, deliveries</td>
<td>7</td>
</tr>
<tr>
<td>Counselling and testing</td>
<td>2</td>
</tr>
<tr>
<td>Traditional healer teaching</td>
<td>0</td>
</tr>
<tr>
<td>Cervical cancer screening</td>
<td>1</td>
</tr>
<tr>
<td>Voluntary male circumcision</td>
<td>1</td>
</tr>
<tr>
<td>Nutrition corner</td>
<td>1</td>
</tr>
</tbody>
</table>
4.2.4 Number of ART (including PMTCT) patients seen

Participants (94%; n=186) reported the number of ART (including PMTCT) patients seen to be ranging from 10 to 600 per week. The mean number of patients seen per week was 173 (CI=138-175) and the standard deviation was 129 hence there was a large difference in the number of patients seen at facilities across the districts.

According to table 4.7, 40% (n=76) of the participants saw between 0-99 patients, 28% (n=52) of the participants saw between 100-199 patients, 15% (n=28) of the participants saw between 200-299 patients, 3% (n=6) of the participants saw 300-399 patients, 10% (n=18) of the participants saw 400-499 patients and 4% (n=6) of the participants saw between 500-699 patients.

The variable was analysed using Kruskal Wallis ANOVA and at the 0.05 significance level the test was significant (p=0.035). It was concluded that there was a significant difference in the number of ART (including PMTCT) patients seen at facilities across the districts.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Frequency (f)</th>
<th>mid Class (x)</th>
<th>f×</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-99</td>
<td>76</td>
<td>49.5</td>
<td>3762</td>
<td>40%</td>
</tr>
<tr>
<td>100-199</td>
<td>52</td>
<td>149.5</td>
<td>7774</td>
<td>28%</td>
</tr>
<tr>
<td>200-299</td>
<td>28</td>
<td>249.5</td>
<td>6986</td>
<td>15%</td>
</tr>
<tr>
<td>300-399</td>
<td>6</td>
<td>349.5</td>
<td>2097</td>
<td>3%</td>
</tr>
<tr>
<td>400-499</td>
<td>18</td>
<td>449.5</td>
<td>8091</td>
<td>10%</td>
</tr>
<tr>
<td>500-599</td>
<td>5</td>
<td>549.5</td>
<td>2747.5</td>
<td>3%</td>
</tr>
<tr>
<td>600-699</td>
<td>1</td>
<td>649.5</td>
<td>649.5</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Σf = 186</strong></td>
<td></td>
<td></td>
<td><strong>32107</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Mean (ẍ) = Σf× / N = 32107/186 = 172.6 = 173 (CI=138-175)

Standard deviation = 129

Kruskal Wallis ANOVA: p=0.035 α=0.05

4.2.5 Number of days per week ART (Including PMTCT) services are offered

In this study, participants (100%; n=197) reported the number of days per week ART (including PMTCT) services were offered to be ranging from 1 to more than five days.
The mean number of days was 4.5 (CI=4.4-4.7) and the standard deviation was 1, hence there was very little difference in the number of days ART services were offered amongst the facilities.

As shown in table 4.8, 3% (n=7) of the participants reported the number of days per week ART (including PMTCT) services were offered to be one day, 6% (n=13) of the participants reported the number of days per week ART (including PMTCT) services were to be two days, 6% (n=11) of the participants reported the number of days per week ART (including PMTCT) services were offered to be three days, 8% (n=16) of the participants reported the number of days per week ART (including PMTCT) services were offered to be four days, 71% (n=140) of the participants reported the number of days per week ART (including PMTCT) services were offered to be five days and 6% (n=10) of the participants reported the number of days per week ART (including PMTCT) services were offered to be more than five days.

The variable was analysed using Kruskal Wallis ANOVA and at the 0.05 significance level the test was significant (p=0.000). It was concluded that the number of days ART (including PMTCT) services were offered differed significantly across the districts.

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>&gt;5</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>71</td>
<td>6</td>
</tr>
</tbody>
</table>

Mean =4.5 (CI=4.4-4.7)  
Standard deviation = 1  
Kruskal Wallis ANOVA: p= 0.000 α=0.05

4.2.6 Number of days PMTCT services is offered

In this study participants (98%; n=194) provided information on the number of days PMTCT services are offered. The mean days was 3.8 (CI=3.6-4.0) and standard deviation was 1.6, hence there was little variation in the number of days PMTCT services were offered at facilities across the districts.

As shown in table 4.9, participants (8%; n=16) reported that PMTCT services were offered for one day per week, 24% (n=47) of the participants reported that PMTCT
services were offered for two days per week, 7% (n=14) of the participants reported that PMTCT services were offered for three days per week, 5% (n=9) of the participants reported that PMTCT services are offered for four days per week, 54% (n=104) of the participants reported that PMTCT services were offered for five days per week, 2% (n=4) of the participants reported that PMTCT services are offered for more than five days per week.

The variable was analysed using Kruskal Wallis ANOVA and at the 0.05 significance level the test was significant (p=0.000). It was concluded that the number of days per week PMTCT services were offered differed significantly across districts.

<table>
<thead>
<tr>
<th>Table 4.9: Responses on number of days PMTCT services is offered (n=194)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>% Response</td>
</tr>
</tbody>
</table>

Mean = 3.8 (CI=3.6-4.0)
Standard deviation= 1.6
Kruskal Wallis ANOVA: p=0.000 α=0.05

4.2.7 Average time spent by an individual who visits the facility for ART services

In this study participants (88%; n=174) provided information on the average time spent by an individual who visits the facility for ART services but 12% (n=23) of the participants did not provide any answer. The mean time was 2.7 hours (CI=2.4-3.0) and the standard deviation was 2, hence there was little variation across districts regarding time spent by an individual seeking ART services at facilities.

According to table 4.10, participants (45%; n=79) reported that the patients spent on average 30 minutes, 20% (n=34) of the participants reported that the individuals spent on average 1 hour for ART services, 21% (n=37) of the participants reported that the individuals spend on average 2 hours for ART services, 4% (n=7) of the participants reported that the individuals spent on average 3 hours for ART services, 7% (n=12) of the participants reported that the individuals spent on average 4 hours for ART services, 3% (n=5) of the participants reported that the individuals spent on average more than 4 hours for ART services.
The variable was analysed using Kruskal Wallis ANOVA and result was significant (p=0.002) at the 0.05 significance level. It was concluded that the average time spent by an individual seeking ART services differed significantly across the districts.

### Table 4.10: Responses on average time spent at facility (n=174)

<table>
<thead>
<tr>
<th>Time</th>
<th>30 mins</th>
<th>1 hr</th>
<th>2 hrs</th>
<th>3 hrs</th>
<th>4 hrs</th>
<th>&gt;4 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Response</td>
<td>45</td>
<td>20</td>
<td>21</td>
<td>4</td>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

Mean=2.7 (CI=2.4-3.0)  
Standard deviation = 2  
Kruskal Wallis ANOVA: p=0.002 α=0.05

4.2.8 Consultation time for an individual seeking ART services

In this study, participants (83%; n=164) provided a response on the consultation time for an individual seeking ART services whilst 17% (n=17) of the participants did not provide a response. The mean consultation time was 2.6 (CI=2.2-2.9) and standard deviation was 2.3, hence there was little variation in the consultation time for an individual seeking ART services at facilities amongst districts.

As shown in table 4.11, 67% (n=111) of the participants reported that the consultation time for an individual seeking ART services was 30 minutes, 20% (n=32) of the participants reported that the consultation time for an individual seeking ART services was 1 hour, 4% (n=7) of the participants reported that the consultation time for an individual seeking ART services was 2 hours, 2% (n=3) of the participants reported that the consultation time for an individual seeking ART services was 3 hours, 1% (n=2) of the participants reported that the consultation time for an individual seeking ART services was 4 hours, 6% (n=9) of the participants reported that the consultation time for an individual seeking ART services is more than 4 hours.

The variable was analysed using Kruskal Wallis ANOVA and the result was not significant (p=0.131) at the 0.05 significance level. It was concluded that time taken to provide consultation services was the same across the districts.
### Table 4.11: Responses on time taken to consult a nurse (n=164)

<table>
<thead>
<tr>
<th>Time</th>
<th>30 mins</th>
<th>1 hr</th>
<th>2 hrs</th>
<th>3 hrs</th>
<th>4 hrs</th>
<th>&gt;4 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Response</td>
<td>67</td>
<td>20</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

Mean=2.6 (CI-2.2-2.9)
Standard deviation = 2.3
Kruskal Wallis ANOVA: p=0.131 α=0.05

### 4.2.9 Availability of ARVs at facilities

Participants (99%; n=195) provided information on the availability of ARVs at their facilities whilst 1% (n=2) did not provide any response. As detailed in Table 4.12, (66%; n=130) of the participants strongly agreed that ARVs were always available at their facilities, 27% (n=54) of the participants agreed that ARVs were always available at their facilities, 3% (n=5) of the participants were neutral that ARVs were always available at their facilities, 1% (n=2) of the participants disagreed that ARVs were always available at their facilities, 2% (n=4) of the participants strongly disagreed that ARVs were always available at their facilities and 1% (n=2) of the participants did not provide any information on the availability of ARVs at their facilities.

The variable was analysed using Kruskal-Wallis One-Way Analysis of Variance (ANOVA) and at the 0.05 significance level the result was not significant (p= 0.334; α=0.05). It was concluded that availability of ARVs was the same across the districts.

### Table 4.12: Responses on ARV availability (n=195)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>66</td>
<td>27</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p = 0.334 α=0.05

### 4.2.10 Availability of drugs to manage other health conditions

In this study participants (100%; n=197) provided a response on the availability of drugs to manage other health conditions. As shown in table 4.13, 24% (n=47) of the
participants strongly agreed that drugs to manage other health condition were always available, 51% (n=101) of the participants agreed that drugs to manage other health condition were always available, 12% (n=23) of the participants were neutral that drugs to manage other health condition were always available, 12% (n=24) of the participants disagreed that drugs to manage other health condition were always available and 1% (n=2) of the participants strongly disagreed that drugs to manage other health condition were always available.

The variable was analysed using Kruskal Wallis ANOVA and at the 0.05 significance level the result was not significant. It was concluded that availability of drugs to manage other health conditions was the same across the districts (p=0.447; α=0.05).

<table>
<thead>
<tr>
<th>Table 4.13: Responses on availability of drugs to manage other health conditions (n=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
</tr>
<tr>
<td>% response</td>
</tr>
<tr>
<td>Kruskal-Wallis ANOVA: p=0.447 α=0.05</td>
</tr>
</tbody>
</table>

4.2.11 Adequate staff to provide ART services

In this study, participants (99.5%; n=196) provided responses on the adequacy of staff that provide ART services whilst 0.5% (n=1) of the participants did not provide any response. According to table 4.14, 16% (n=32) of the participants strongly agreed that their facilities had adequate staff to provide ART services, 23% (n=45) of the participants agreed that their facilities had adequate staff to provide ART services, 13% (n=26) of the participants were neutral on whether their facilities had adequate staff to provide ART services, 28% (n=55) of the participants disagreed that their facilities had adequate staff to provide ART services, 19% (n=38) of the participants strongly disagreed that their facilities had adequate staff to provide ART services.

The variable was analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was significant (p=0.000). It was concluded that adequacy of staff to provide ART services was significantly different across the districts.
Table 4.14: Responses on adequacy of staff to provide ART services (n=196)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>16</td>
<td>23</td>
<td>13</td>
<td>28</td>
<td>19</td>
<td>1</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.000 α=0.05

4.2.12 Qualification and competency of staff to provide ART services

In this study, participants (99.5%; n=196) provided responses on whether staff providing ART services were qualified and competent but 0.5% (n=1) did not provide any response. According to table 4.15, 58% (n=114) of the participants strongly agreed that staff providing ART services was qualified and competent, 31% (n=62) of the participants agreed that staff providing ART services was qualified and competent, 1.5% (n=3) of the participants were neutral on whether staff providing ART services was qualified and competent, 9% (n=17) of the participants disagreed that staff providing ART services was qualified and competent.

The variable was analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was not significant (p=0.305 α=0.05). It was concluded that qualification and competency of staff to provide ART services was the same at facilities across the districts.

Table 4.15: Responses on whether staff was qualified and competent (n=196)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>58</td>
<td>31</td>
<td>1.5</td>
<td>9</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.305 α=0.05

4.2.13 Adequacy of resources and equipment for the delivery of ART services

In this study, participants (99.5%; n=196) provided responses on the adequacy of resources and equipment for the provision of ART services whilst 0.5% (n=1) of the participants did not provide any response. As shown in table 4.16, 28% (n=58) of the participants strongly agreed that their facility had adequate resources and equipment for the provision of ART services, 42% (n=82) of the participants agreed that their facility
had adequate resources and equipment for the provision of ART services, 15% (n=30) of the participants were neutral on whether their facility had adequate resources and equipment for the provision of ART services, 9% (n=17) of the participants disagreed that their facility had adequate resources and equipment for the provision of ART services, 5.5% (n=11) of the participants strongly agreed that their facility had adequate resources and equipment for the provision of ART services.

The variable was analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was not significant (p=0.153). It was concluded that adequacy of resources and equipment to provide ART services at facilities was the same across districts.

Table 4.16: Responses on adequacy of resources and equipment (n=196)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>28</td>
<td>42</td>
<td>15</td>
<td>9</td>
<td>5.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.153 α=0.05

4.2.14 Adequacy and efficiency of ART services

In this study, participants (99.5%; n=196) provided responses whether the organisational structure at their facilities allowed for the provision of adequate and efficient services whilst 0.5% (n=1) did not provide a response. As shown in table 4.17, 35% (n=68) of the participants strongly agreed that their organisational structure allowed for the provision of adequate and efficient ART services, 30% (n=60) of the participants agreed that their organisational structure allowed for the provision of adequate and efficient ART services, 19% (n=37) of the participants were neutral on whether their organisational structure allowed for the provision of adequate and efficient ART services, 10% (n=20) of the participants disagreed that their organisational structure allowed for the provision of adequate and efficient ART services, 5.5% (n=11) of the participants strongly disagreed that their organisational structure allowed for the provision of adequate and efficient ART services.

The variables were analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was significant (p=0.047). It was concluded that organisational structures
significantly differed in allowing for the provision of adequate and efficient services at facilities across districts.

<table>
<thead>
<tr>
<th>Table 4.17: Responses on whether organisational structure allowed for adequate and efficient services (n=196)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
</tr>
<tr>
<td><strong>% response</strong></td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.047 α=0.05

4.2.15 Accessibility of services

In this study, participants (100%; n=197) provided responses on the accessibility of services at their facilities. According to table 4.18, 48% (n=94) of the participants strongly agreed that services were routinely, accurately and efficiently provided to allow accessibility, 42% (n=84) of the participants agreed that services were routinely, accurately and efficiently provided to allow accessibility, 4% (n=8) of the participants were neutral to services were routinely, accurately and efficiently provided to allow accessibility and 6% (n=11) of the participants disagreed that services were routinely, accurately and efficiently provided to allow accessibility.

The variable was analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was significant. It was concluded that accessibility of services at facilities significantly differed across districts (p=0.003 α=0.05)

<table>
<thead>
<tr>
<th>Table 4.18: Responses on whether services were routinely, accurately and efficiently provided (n=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
</tr>
<tr>
<td><strong>% Response</strong></td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.003 α=0.05

4.2.16 Time spent allows patients to receive all services required

In this study participants 100% (n=197) provided responses on whether the time spent by patients at the facility allowed them to receive ART services required. As shown in table 4.19, 57% (n=113) strongly agreed that the time spent at the facility allowed
patients to receive all ART services required, 34% (n=67) of the participants agreed that the time spent at the facility allowed patients to receive all ART services required, 5% (n=10) of the participants were neutral on whether the time spent at the facility allowed patients to receive all ART services required, 1% (n=2) of the participants disagreed that the time spent at the facility allowed patients to receive all ART services required and 3% (=5) of the participants strongly disagreed that the time spent at the facility allowed patients to receive all ART services required.

The variable was also analysed using Kruskal-Wallis ANOVA and at the 0.05 significance level the result was significant (p=0.030). It was concluded that there was a significant difference in time spent at facility allowing all ART services to be received across districts.

<table>
<thead>
<tr>
<th>Table 4.19: Time spent at facility allows for all ART services to be received (n=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response</strong></td>
</tr>
<tr>
<td><strong>% response</strong></td>
</tr>
<tr>
<td><strong>Kruskal-Wallis test ANOVA: p 0.030 α=0.05</strong></td>
</tr>
</tbody>
</table>

4.2.17 Adequacy and accuracy of documentary evidence

In this study, participants (100%; n=197) provided responses on whether the documentary evidence on ART was adequate and accurate at their facilities. According to table 4.20, 31% (n=60) of the participants strongly agreed that documentary evidence at their facilities was adequate and accurate, 45% (n=89) of the participants agreed that documentary evidence at their facilities was adequate and accurate, 19% (n=38) of the participants were neutral on whether documentary evidence at their facilities was adequate and accurate, 2.5% (n=5) of the participants disagreed that documentary evidence at their facilities was adequate and accurate and 2.5% (n=5) of the participants strongly disagreed that documentary evidence at their facilities was adequate and accurate.

Kruskal-Wallis ANOVA was used to analyse the variables and at the 0.05 significance level the result was significant (p=0.020). It was concluded that adequacy and accuracy of documentary evidence differed significantly across districts.
Table 4.20: Responses on whether documentary evidence was adequate (n=197)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>31</td>
<td>45</td>
<td>19</td>
<td>2.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.020 α=0.05

4.2.18 Patients satisfaction with ART services

In this study, participants (100%; n=197) provided responses on whether the patients receiving ART services were satisfied with the services that were offered at facilities. According to table 4.21, 32% (n=64) of the participants strongly agreed that patients were satisfied with ART services offered at their facilities, 46% (n=90) of the participants agreed that patients were satisfied with ART services offered at their facilities, 20% (n=39) of the participants were neutral that patients were satisfied with ART services offered at their facilities, 1% (n=2) of the participants disagreed that patients were satisfied with ART services offered at their facilities and 1% (n=2) of the participants strongly disagreed that patients were satisfied with ART services offered at their facilities.

Kruskal-Wallis ANOVA was used to analyse the data and at the 0.05 significance level the result was not significant (p=0.383 α=0.05). It was concluded that patients’ satisfaction with ART services at facilities was the same across districts.

Table 4.21: Patients satisfied with ART services offered (n=197)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>32</td>
<td>46</td>
<td>20</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.383 α=0.05

4.2.19 Nurses satisfaction with their job and ART services offered

In this study, participants (99.5%; n=196) provided responses on whether they were satisfied with their jobs and the ART services offered. As shown in table 4.22, 33.5% (n=66) of the participants strongly agreed that they were satisfied with their jobs and ART services offered at facilities, 44% (n=86) of the participants agreed that they were satisfied with their jobs and ART services offered at facilities, 7% (n=13) of the
participants were neutral whether they were satisfied with their jobs and ART services offered at facilities, 12% (n=24) of the participants disagreed that they were satisfied with their jobs and ART services offered at facilities, 3% (n=7) of the participants strongly disagreed that they were satisfied with their jobs and ART services offered at facilities.

Kruskal-Wallis ANOVA was used to analyse the data and at the 0.05 significance level the result was not significant (p=0.164). It was concluded that nurses satisfaction with their jobs and ART services offered at facilities was the same across districts.

**Table 4.22: Responses on whether participants were satisfied with their jobs and ART services (n=196)**

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>33.5</td>
<td>44</td>
<td>7</td>
<td>12</td>
<td>3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.164 α=0.05

### 4.2.20 Efficient monitoring and evaluation system for ART

In this study participants (76.5%; n=151) provided responses on whether there was an efficient monitoring and evaluating system for the ART program. As shown in table 4.23, 24.5% (n=48) of the participants strongly agreed that there was a monitoring and evaluating system for the ART program, 36% (n=71) of the participants agreed that there was a monitoring and evaluating system for the ART program, 8.1% (n=16) of the participants were neutral whether there was a monitoring and evaluating system for the ART program, 6% (n=12) of the participants disagreed that there was a monitoring and evaluating system for the ART program, 2% (n=4) of the participants strongly disagreed that there was a monitoring and evaluating system for the ART program.

Kruskal-Wallis ANOVA was used to analyse the data and at the 0.05 significance level the result was not significant (p=0.929). It was concluded that efficient monitoring and evaluation of the ART program was the same across the districts.
Table 4.23  Responses on whether monitoring and evaluating system was in place (n=151)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% response</td>
<td>24.5</td>
<td>36</td>
<td>8.1</td>
<td>6</td>
<td>2</td>
<td>23.4</td>
</tr>
</tbody>
</table>

Kruskal-Wallis ANOVA: p=0.929 α=0.05

4.2.21 Challenges on Implementation of ART program

In this study, participants were asked to provide any other challenges that were being experienced in the implementation of the ART program. The challenges mentioned were not any different from the ones already described. Only 65% (n=127) out of the 197 (100%) of participants provided a written response when asked to provide challenges they face in the implementation of the ART program.

*Patients defaulting on PMTCT*

Figure 4.20 shows the proportion of participants who commented that patients were defaulting on PMTCT and 12% (n=15) of the participants attributed defaulting on PMTCT to migrant labour in RSA which resulted in treatment defaulters due to work commitments, 8% (n=10) explained that there were very high numbers of defaulters, 1% (n=1) attributed defaulting treatment to the geographic terrain of the country that hinders some patients from accessing ART, 2% (n=3) explained that some mothers were sero-converting to become positive after delivery, 6% (n=8) explained that patients there was poor adherence due to lack of food, 1% (n=1) explained that some patients stopped taking ARVs and started using immune boosters, 1% (n=1) explained that defaulting resulted from treatment being initiated without a treatment supporter, 2% (n=2) that defaulting was also due to husbands not attending PMTCT sessions, 2% (n=2) explained that there was an increase in the number of new infections, 9% (n=12) said that PMTCT mothers were pretending to be taking ART, 4% (n=6) explained that patients were not attending the ART clinics, 1% (n=1) explained that they also found ARVs in the street, 2% (n=2) explained that some patients are lost to follow up, 2% (n=3) stated that some patients still do not disclose their status especially to their partners, 2% (n=3) explained that some patients are reluctant to start ART, 1% (n=1) attributed treatment interruption to patients experiencing side effects especially renal
impairment and anaemia and 44% (n=56) did not cite patients defaulting on PMTCT as a challenge.

Figure 4.20: Proportion of participants who cited patients defaulting on PMTCT as a challenge (n=127)

**Shortage of staff**

Figure 4.21 shows proportion of participants who cited shortage of staff as a challenge and 14% (n=18) of the participants explained that shortage of staff resulted in work overload, 1% (n=1) of the participants explained that there was no physician specific to provide paediatric ART, 5% (n=5) of the participants explained that there too much paper work and tools to document for the ART program, 1% (n=2) of the participants explained that there was no doctor to help with patients that could not go to the hospital, 2% (n=2) of the participants explained that there was a dire shortage of registered nurse/midwives/clinicians for effective implementation of the ART program, 2% (n=2) of the participants explained that there was also a shortage of professional counsellors and 75% (n=95) did not cite shortage of staff as a challenge.
Figure 4.21: Proportion of participants who cited shortage of staff as a challenge (n=127)

*Stock outs of drugs*

Figure 4.22 shows the proportion of participants who cited drug stock outs as a challenge and 4% (n=5) of the participants explained that there were stock outs of frequently used drugs, 4% (n=5) explained that orders were delayed resulting in drug stock outs, 1% (n=2) said that sometimes there were country shortages of drugs, 1% (n=1) alluded to traditional medicines being mixed with ARVs when there were stock outs and 90% (n=114) of the participants did not cite drug stock outs as a challenge.

Figure 4.22: Proportion of participants who cited stock outs of drugs as a challenge (n=127)
Lack of equipment

Figure 4.23 shows proportion of participants who cited lack of equipment as a challenge and 17% (n=22) of the participants explained the lack of the CD4+ machine was a major challenge, 2% (n=2) cited the lack of laboratory reagents to be a challenge, 2% (n=3) explained that lack of equipment resulted in delayed initiation of patients in stages 1 and 2 of HIV disease, 4% (n=5) stated that the turn around time for blood specimens was too long due to a lack of reagents, 2% (n=2) cited the lack of registers to be a challenge and 73% (n=93) did not cite lack of equipment as a challenge.

![Figure 4.23: Proportion of participants who cited lack of equipment as a challenge (n=127)](image)

Too many patients

Figure 4.24 shows the proportion of participants who alluded to too many patients as a challenge and 8% (n=10) explained that there was work overload due to many ART patients requiring services, 2% (n=2) cited that ART patients were actually increasing and 90% (n=115) of the participants did not cite too many patients as a challenge.
Figure 4.24: Proportion of participants who cited too many patients as a challenge (n=127)

Lack of adequate training

Figure 4.25 shows the proportion of participants who cited lack of adequate training as a challenge and 1% (n=2) of the participants explained that they had not received training on implementation of new ART guidelines, 1% (n=1) explained that they actually lacked competence in ART implementation, 1% (n=1) stated that there was a high rate of treatment failure that was not being managed well whilst 97% (n=123) of the participants did not cite it as a challenge.

Figure 4.25: Proportion of participants who cited lack of adequate training as a challenge (n=127)
Inadequate Infrastructure

Figure 4.26 shows the proportion of participants who cited inadequate infrastructure as a challenge in the propagation of the ART program and 7% (n=9) of the participants explained that they did not have adequate space to provide ART services, 5% (n=7) said that there was poor road infrastructure to their facility, 1% (n=1) cited that there was lack of patients privacy due to inadequate space, 1% (n=1) explained that they could not cater for bedridden patients due to inadequate space, 2% (n=2) stated the need for an ambulance to ferry patients to the hospital and 84% (n=107) did not cite inadequate infrastructure as a challenge.

![Figure 4.26: Proportion of participants who cited inadequate infrastructure as a challenge (n=127)](image)

Lack of supportive supervision

Figure 4.27 shows the proportion of participants who cited lack of supportive supervision as a challenge and 1% (n=2) of the participants explained that general lack of supportive supervision resulted in poor implementation of the ART program, 1% (n=2) stated that there was no cell phone airtime provided to enable communication regarding the services provided or challenges being faced at the facilities, 1% (n=1) said that specimens were being collected only once a week, 1% (n=1) explained that there was inadequate counselling of patients hence the high defaulter rate, 1% (n=1) cited that stigma and discrimination was affecting effective implementation of the ART program, 1% (n=1) explained that patients were refusing protected sex, 2% (n=3) said that patients were being lost to follow up, 1% (n=1) explained that poverty was affecting
adherence to ART and 91% (n=116) of the participants did not cite lack of support as a challenge.

Figure 4.27: Proportion of participants who cited Lack of supportive supervision as a challenge (n=127)

Inadequate ART services

Figure 4.27 shows the proportion of participants who cited inadequate ART services as challenge and 1% (n=1) of the participants explained that they were not conducting any immunisations, 1% (n=1) stated that there was poor record keeping at their facility, 1% (n=1) cited the high rate of co-infection with pulmonary TB amongst HIV positive patients, 1% (n=1) said that lack of cell phone airtime affected the provision of ART services and 96% (n=123) of the participants did not cite inadequate ART services as a challenge.
4.2.22 Suggestions for improvement

In this study participants were asked to provide any suggestions for improving the ART program. Only 58% (n=114) of the participants provided suggestions to improve the ART program. Table 4.24 shows the suggestions that participants made with regard to the ART program.

*Increase support*

Participants (8%; n=9) suggested there be support groups and continuous counselling of patients, 3% (n=4) suggested that there must be improved supervision, 2% (n=2) said there is a need to provide jobs for HIV positive patients to alleviate poverty, 4% (n=5) cited the need to use an electronic recording system, 2% (n=2) stated the need to have a tracking system for patients.

*Improve staffing patterns*

Participants (10%; n=12) suggested there must be nurses employed specifically for ART service provision, 32% (n=36) stated the need to employ other cadres such as data clerks, pharmacists, professional counsellors and nurse clinicians, 6% (n=6) said there must physicians specific for ART services especially in hospital settings.
Improve ART service delivery

Participants (3%; n=4) of the participants suggested the need to engage all stakeholders in the provision of ART, 1% (n=1) stated the need to strengthen pill count to improve adherence, 2% (n=2) cited the need to use an electronic recording system, 2% (n=3) suggested ART service be included in outreach services to improve accessibility, 1% (n=1) suggested the need to increase use of the supermarket approach, 3% (n=3) stated the need to provide cell phone airtime and phones to improve on communication, 3% (n=3) explained the need to provide patients with six months ART supply as long as the patient is doing well on ART, 1% (n=1) cited the need to equip staff with customer care skills, 2% (n=2) suggested the need to release investigatory results on time.

Improve equipment

Participants (16%; n=18) suggested that every facility must have its own CD4+ machine, 6% (n=7) stated the need to improve on procurement strategies, 2% (n=2) said that health centre facilities must be allowed to order commodities directly from the supplier and not through the hospital, 2% (n=2) cited the need to improve on supply of registers and drugs.

Improve transport facility

Participants (8%; n=9) suggested that more transport could be used to conduct supervisory visits, 2% (n=2) explained that more transport could improve on taking specimens daily, 1% (n=1) cited the need to have more ambulances available to transport patients from health centre, 3% (n=3) suggested the need for transport to conduct outreach services.

Improve Infrastructure

Participants (12%; n=14) suggested the need to further expand infrastructure.
Conduct more trainings on ART

Participants (11%; n=13) suggested the need for quarterly trainings or refresher courses, 3% (n=3) cited the need to train village health workers on ART.

Improve on health education

Participants (13%; n=15) suggested the need to improve reinforcement on adherence, 2% (n=2) cited the need to emphasise condom use amongst patients, 2% (n=3) said there is need to reduce stigma and discrimination of HIV positive patients, 3% (n=3) of the participants suggested the need for more family counselling.

Liase health for RSA workers

Participants (4%; n=5) suggested that there must be an agreement between Lesotho and RSA to have the same ART system and a plan of care for HIV positive Basotho employed there.

Avoid stock outs of drugs

Participants (42%; n=48) suggested the need to have an adequate supply of drugs at national level, 6% (n=7) of the participants suggested the need to improve on procurement services.
Table 4.24: Suggestions to improve ART program (n=114)

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase support</td>
<td>Support groups and continuous counselling</td>
</tr>
<tr>
<td></td>
<td>Improve supervision at facility</td>
</tr>
<tr>
<td></td>
<td>Provide jobs for HIV positive individuals</td>
</tr>
<tr>
<td></td>
<td>Use of electronic reporting system</td>
</tr>
<tr>
<td></td>
<td>Have a tracking system for patients</td>
</tr>
<tr>
<td>Improve staffing</td>
<td>Employ nurses specifically for ART</td>
</tr>
<tr>
<td></td>
<td>Increase staff – data clerk, pharmacist, counsellors, nurse clinicians</td>
</tr>
<tr>
<td></td>
<td>Specific Physicians to run ART</td>
</tr>
<tr>
<td>Improve ART</td>
<td>Engage all stakeholders in the provision of ART</td>
</tr>
<tr>
<td></td>
<td>Strengthen pill count</td>
</tr>
<tr>
<td></td>
<td>Electronic recording system</td>
</tr>
<tr>
<td></td>
<td>ART services to be included in outreach activities</td>
</tr>
<tr>
<td></td>
<td>Use supermarket approach</td>
</tr>
<tr>
<td></td>
<td>Provide cell phones and air time</td>
</tr>
<tr>
<td></td>
<td>Provide six months supply of ARVs</td>
</tr>
<tr>
<td></td>
<td>Equip staff with customer care skills</td>
</tr>
<tr>
<td></td>
<td>Release investigatory results on time</td>
</tr>
<tr>
<td>Improve equipment</td>
<td>CD4+ machine at each health centre facility</td>
</tr>
<tr>
<td></td>
<td>Improve procurement strategies</td>
</tr>
<tr>
<td></td>
<td>Health centre to order drugs directly from supplier</td>
</tr>
<tr>
<td></td>
<td>Improve on supply of registers and drugs</td>
</tr>
<tr>
<td>Improve transport</td>
<td>To conduct follow up visits</td>
</tr>
<tr>
<td></td>
<td>To take specimens daily for analysis</td>
</tr>
<tr>
<td></td>
<td>Provide ambulance for health centre</td>
</tr>
<tr>
<td></td>
<td>To conduct outreach activities</td>
</tr>
<tr>
<td>Improve infrastructure</td>
<td>Expand infrastructure</td>
</tr>
<tr>
<td>Conduct more trainings</td>
<td>Quarterly trainings or refresher courses</td>
</tr>
<tr>
<td></td>
<td>Training of village health workers</td>
</tr>
<tr>
<td>Improve health education</td>
<td>Reinforce adherence</td>
</tr>
<tr>
<td></td>
<td>Emphasise condom use</td>
</tr>
<tr>
<td></td>
<td>Reduce stigma and discrimination</td>
</tr>
<tr>
<td></td>
<td>Counselling of families</td>
</tr>
<tr>
<td>Liase health for RSA workers</td>
<td>Have same ART system in RSA and Lesotho</td>
</tr>
<tr>
<td>Avoid stock outs of drugs</td>
<td>Adequate supply of drugs</td>
</tr>
<tr>
<td></td>
<td>Improve on procurement</td>
</tr>
</tbody>
</table>

4.3 QUALITATIVE ANALYSIS

This section presents results for the qualitative data collected for this study. Purposive sampling was used to recruit participants who took part in the focus group discussions. Two (2) focus group discussions were done for the registered nurses/midwives/nurse clinicians rendering ART services. Purposive sampling was used to recruit participants. The researcher invited five (5) registered nurses from two (2) health centre facilities found in two (2) adjacent districts (Maseru rural and Mafeteng) to participate in the first focus group discussion when they came for their statistical reporting meeting at a
hospital responsible for the supervision of both clinics. The second focus group discussion involved three (3) registered nurses from another health facility found in another district (Maseru urban). These participants were not involved in the quantitative strand of the study.

Participants receiving ART services were recruited to participate in focus group discussions from two (2) health centre found in two different districts (Maseru rural and Mafeteng). The first group had seven (7) participants and the second group had four (4) participants. Purposive sampling was used to recruit the participants. As they came in for their regular ART services participants were introduced to the researcher and the study and asked to participate in the study. Those willing to take part in the focus group discussions were asked to give written consent before the focus group discussions began.

Constant comparison analysis was used to analyse data from the focus group discussions. As explained by Leech and Onwuegbuzie (2007:565) it is the most used type of analysis developed by Glaser and Strauss (1967) (further described by Strauss and Corbin 1998) which involves reading the entire set of data, chunking the data into smaller meaningful parts, labelling each chunk with a descriptive title or code and identifying and documenting a theme based on each title. The authors further explained that initially constant comparison analysis was developed to analyse data over a series of rounds leading to theoretical sampling in order to develop emergent themes, assess adequacy, relevance and meaningfulness of themes, refine ideas and identify conceptual boundaries but it has since been modified to analyse data collected in one round (Leech & Onwuegbuzie 2007:565). Corbin and Strauss (2008:73) explained that this type of analysis is important as it allows the researcher to differentiate one category or theme from another and also to identify properties and dimensions specific to that category. Using this type of analysis the researchers are able to assess if themes that emerged from one group also emerged in another group thereby assisting the researcher to reach data saturation (Onwuegbuzie, Dickinson, Leech & Zoran 2009:[9]).

In this study the researcher listened to the recorded interviews and transcribed the verbatim into written scripts. The data was initially coded into small data units. Axial coding was then used to develop categories. Lastly selective coding was used to arrange the categories into themes. A co-coder was engaged to assist and confirm in
the coding and theme development processes. The researcher reached data saturation by:

- Conducting the first round of focus group discussions with groups of registered nurses and patients separately (Maseru rural and Mafeteng).
- Conducting the second round of focus group discussions with the second groups of registered nurses and patients (Maseru Urban and Mafeteng).
- Assessing whether themes that emerged from the registered nurses also emerged from the patients.

There were two objectives for the qualitative aspect of the study:

- Explore and describe experiences and views of registered nurse midwives/clinicians on the ART program in the PHC settings.
- Explore and describe experiences and views of patients on the ART program in the PHC settings.

4.3.1 Demographic characteristics of participants

Demographic characteristics of registered nurse midwives and clinicians

Table 4.25 shows the demographic characteristics of the participants involved in the focus group discussion with registered nurses. Sample 1 was comprised of two (2) nurse clinicians and three (3) registered nurse midwives of which one respondent was male and four of the participants were female whilst sample 2 had 3 registered nurses who were all female. Their age range was 35 with the youngest nurse being 27 years and the oldest was aged 62 years. Participants had been involved in the provision of ART services for between two to eleven years and the range was 9.
Table 4.25: Demographic characteristics of registered nurse midwives/clinicians: Sample 1; (n=5)

<table>
<thead>
<tr>
<th>Participants code</th>
<th>Age</th>
<th>Sex</th>
<th>How long have you been involved in the provision of ART services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ma01</td>
<td>44</td>
<td>M</td>
<td>11 yrs</td>
</tr>
<tr>
<td>Ma02</td>
<td>27</td>
<td>F</td>
<td>3 yrs</td>
</tr>
<tr>
<td>Mo01</td>
<td>28</td>
<td>F</td>
<td>3 yrs</td>
</tr>
<tr>
<td>Mo02</td>
<td>62</td>
<td>F</td>
<td>8 yrs</td>
</tr>
<tr>
<td>Mo03</td>
<td>36</td>
<td>F</td>
<td>3 yrs</td>
</tr>
<tr>
<td></td>
<td>Mean age ((\bar{x})) = 39</td>
<td>Mean years ((\bar{x})) = 6</td>
<td></td>
</tr>
</tbody>
</table>

Sample 2: (n=3)

<table>
<thead>
<tr>
<th>Participants code</th>
<th>Age</th>
<th>Sex</th>
<th>How long have you been involved in the provision of ART services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn01</td>
<td>43</td>
<td>F</td>
<td>5</td>
</tr>
<tr>
<td>Mn02</td>
<td>37</td>
<td>F</td>
<td>4</td>
</tr>
<tr>
<td>Mn03</td>
<td>30</td>
<td>F</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Mean age ((\bar{x})) = 37</td>
<td>Mean years ((\bar{x})) = 4</td>
<td></td>
</tr>
</tbody>
</table>

Demographic characteristics of HIV positive patients

Table 4.26 shows the demographic characteristics of HIV positive patients who participated in this study. Sample 3 comprised of seven (7) participants of which two (2) were males and five (5) were females. Sample 4 comprised of four (4) participants of which two (2) were males and two (2) were females. Their age range was 23 with the youngest participant being thirty two years old and the oldest was fifty five years old. Participants had started taking ARVs from as early as 2005 and the most recent had started taking ARVs in 2015.

Table 4.26: Demographic characteristics of patients: Sample 3; (n=7)

<table>
<thead>
<tr>
<th>Participant’s code</th>
<th>Age</th>
<th>Sex</th>
<th>How long has it been since you started using antiretroviral therapy services</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMo01</td>
<td>44</td>
<td>F</td>
<td>July 2015</td>
</tr>
<tr>
<td>PMo02</td>
<td>55</td>
<td>M</td>
<td>2007</td>
</tr>
<tr>
<td>PMo03</td>
<td>45</td>
<td>F</td>
<td>2005</td>
</tr>
<tr>
<td>PMo04</td>
<td>39</td>
<td>F</td>
<td>2006</td>
</tr>
<tr>
<td>PMo05</td>
<td>36</td>
<td>F</td>
<td>2008</td>
</tr>
<tr>
<td>PMo06</td>
<td>49</td>
<td>M</td>
<td>2005</td>
</tr>
<tr>
<td>PMo07</td>
<td>32</td>
<td>F</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td>Mean age ((\bar{x})) = 43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample 4; (n=4)

<table>
<thead>
<tr>
<th>Participant’s code</th>
<th>Age</th>
<th>Sex</th>
<th>How long has it been since you started using antiretroviral therapy services</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMat01</td>
<td>39</td>
<td>F</td>
<td>2007</td>
</tr>
<tr>
<td>PMat02</td>
<td>41</td>
<td>F</td>
<td>2011</td>
</tr>
<tr>
<td>PMat03</td>
<td>34</td>
<td>M</td>
<td>2013</td>
</tr>
<tr>
<td>PMat04</td>
<td>33</td>
<td>M</td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td>Mean age ((\bar{x})) = 37</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.3.2 Themes

Constant comparison analysis was used to analyse qualitative data manually. This type of analysis is one of the most used analysis undertaken by qualitative researchers involving analysis of the four major sources of data in qualitative research (talk, observations, drawings/photographs, videos and documents) and virtually allows any size or unit of text to be analysed from one paragraph, one transcript, one document or multiple documents (Leech & Onwuegbuzie 2011: 72). Comparison was made on responses amongst the four groups of focus group discussions on each question asked. The researcher developed categories that were emergent from the analysis. Sub-categories were also developed from within the categories. Finally a theme was developed from scrutiny of the categories and sub-categories.

As shown in Table 4.27, emerging themes, categories and sub-categories were developed from the qualitative analysis. A total of seven themes, fourteen categories and twenty two sub-categories emerged from the data analysis.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART program</td>
<td>Demanding program</td>
<td>Adherence counselling, family planning, TB screening, OPD, consultation, blood test, food parcels</td>
</tr>
<tr>
<td>Patients survival</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ART service delivery</td>
<td>Variety of services offered</td>
<td>Adherence counselling, family planning, TB screening, OPD, consultation, blood test, food parcels</td>
</tr>
<tr>
<td></td>
<td>Weekly services</td>
<td>Dysfunctional equipment</td>
</tr>
<tr>
<td></td>
<td>Inadequate services</td>
<td>Wrong clinical monitoring of patients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of other service providers</td>
</tr>
<tr>
<td></td>
<td>Duration of ART service delivery</td>
<td>Depends on conditions of service provider</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of basic utilities</td>
</tr>
<tr>
<td></td>
<td>Treatment defaulters</td>
<td>Depends on the number of patients</td>
</tr>
<tr>
<td></td>
<td>Inefficient ART services</td>
<td>Work commitments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of knowledge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Too many partners</td>
</tr>
<tr>
<td></td>
<td>Medication availability</td>
<td>Low stock</td>
</tr>
<tr>
<td></td>
<td>Sometimes unavailable</td>
<td>Replacement of unavailable drugs</td>
</tr>
<tr>
<td>Staffing adequacy</td>
<td>Inadequate human resource</td>
<td>Disaster imminent</td>
</tr>
</tbody>
</table>
The themes, categories and sub-categories are discussed individually at the beginning of each section. The data was classified in order to facilitate the audit trail. Verbatim quotations from the participants are cited without any attempts to correct grammatical errors.

4.3.2.1 Theme 1: The ART program

This theme refers to participants describing their experiences regarding the antiretroviral therapy program. The researcher observed the participants to be rather excited and full of energy during their responses.

4.3.2.1.1 Demanding program

This category refers to participants describing the ART program as one requiring a lot of effort.

‘It`s very busy.’

‘Hectic, heavy, busy. It keeps us on our toes.’

One participant further elaborated that ART was a challenging program as there were too many patients who sought services.
‘It’s a hectic program. There are too many patients.’

4.3.2.1.2 Patients survival

This category involves patients explaining their experiences and views on the ART program.

Another participant reported an experience of receiving the services well;

‘We get the services well.’

One participant viewed the ART program as one that maintained their survival;

‘It’s a program that has really helped us to survive.’

4.3.2.2 Theme 2: ART service delivery

This theme refers to participants explaining the processes involved in ART service delivery. The participants showed enthusiasm and confidence when providing responses.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART service delivery</td>
<td>4.3.2.2.1 Variety of services offered</td>
<td>4.3.2.2.1.1 Adherence counselling, family planning, TB screening, OPD, consultation, blood test, food parcels</td>
</tr>
<tr>
<td></td>
<td>4.3.2.2.2 Weekly services</td>
<td>4.3.2.2.1.2 Accessible services</td>
</tr>
<tr>
<td>4.3.2.2.3 Inadequate services</td>
<td>4.3.2.2.3.1 Dysfunctional equipment</td>
<td>4.3.2.2.3.2 Lack of registers and ART cards</td>
</tr>
<tr>
<td></td>
<td>4.3.2.2.3.3 Wrong clinical monitoring of patients</td>
<td>4.3.2.2.3.4 Use of other service providers</td>
</tr>
<tr>
<td>4.3.2.2.4 Duration of ART service delivery</td>
<td>4.3.2.2.4.1 Depends on conditions of service provider</td>
<td>4.3.2.2.4.2 Availability of Basic utilities</td>
</tr>
<tr>
<td></td>
<td>4.3.2.2.4.3 Depends on the number of patients</td>
<td>4.3.2.2.5 Treatment defaulters</td>
</tr>
<tr>
<td>4.3.2.2.5.1 Work commitments</td>
<td>4.3.2.2.6 Inefficient ART</td>
<td>4.3.2.2.6.1 Lack of knowledge</td>
</tr>
</tbody>
</table>
4.3.2.6.1 Variety of services offered

This category refers to registered nurses randomly stating their experiences on various services that were offered at their facilities in propagation of the ART program. One participant stated different services that were being provided at their facility;

‘Adherence counselling, family planning, laboratory monitoring, TB screening, treatment of other ailments.’

Another participant added counselling and management of sexually transmitted infections (STIs) and TB screening;

‘Counselling, screening of TB and STIs.’

Another participant added family planning services;

‘Family planning.’

Another participant added counselling to the list;

‘Consultation.’

HIV positive patients also stated their experiences on various services that were offered at the facilities they sought ART services from. One participant stated they did receive support sessions at the facility;

‘We do support sessions.’

Another participant said that bloods were also taken;

‘Bloods are taken on Wednesdays only.’
Another participant also explained that they were given food parcels;

‘We are also given food for the kids. It is mostly given to us who are on ARVs.’

However, another participant further explained the food parcels were not given to everyone;

‘They are not given to everyone. It depends on the health status of the patient and they are only given to an individual for a maximum of six months after which they check if the individual has gained weight and they are removed from the program. Then others are put into the program.’

4.3.2.2.1.2 Accessible services

This sub-category refers to experiences of registered nurses whether ART services were accessible as patients knew the operating days of their facilities.

‘The services are accessible as the patients even know the operating times at the facility.’

Another participant reiterated;

‘Everyone has access and no one is denied the services.’

Registered nurses also explained that time patients spent at the facility allowed them to receive all necessary ART services and did not go home without getting them. One participant stated;

‘Patients get all the services available on that day.’

Another participant reiterated;

‘They never go home without the necessary services.’
4.3.2.2.2 Weekly services

This category refers to experiences of registered nurses whether ART services were offered for the whole week at their facilities including weekend days when necessary. One participant stated;

‘Everyday.’

Another participant explained that ART services were only offered for five days of the week;

‘Monday to Friday.’

Another participant explained that ART services were given during week days and on weekend days as well;

‘Major one is five days but even Saturday and Sunday like PMTCT we still provide services. But sometimes some come for refills and the like we still give them. So you can say for 7 days of the week.’

ART services were understood to be offered on weekends as well as another participant explained;

‘PMTCT is given for the whole 7 days of the week since the women can come to deliver on weekends and if they have to be initiated immediately, they get the service.’

Another participant reiterated that ART services are given on weekends as well especially to women who were pregnant;

‘Some deliver weekends we still give them ART services.’

Patients explained their experiences that antenatal and postnatal services were given on two days of the week even though ART was available on all days of the week; One participant explained;
‘Pregnant women come on Tuesdays and Thursdays.’

Another participant reiterated;

‘It means they come for 2 days.’

Patients further described that those who sought ART services were many and hence why they could be seen still awaiting services at the facility. One participant elaborated;

‘We are many.’

Another participant reiterated;

‘As you can see now we are still here getting services.’

4.3.2.2.3 Inadequate services

This category refers to registered nurses exclaiming that they experienced challenges in monitoring of patients on the ART program. When asked whether patients were able to go through routine tests as planned one participant said;

‘As planned! Sighs! We have a major problem.’

Another participant also reiterated that monitoring of patients was a challenge;

‘It’s very difficult.’

Participants further explained;

‘No! The resources are not adequate at all.’

Another participant explained that the resources were a challenge to be able to provide ART services appropriately;

‘Resources are a major challenge.’
Sub-categories that emerged from data analysis as explanations for the provision of inadequate services included dysfunctional equipment, wrong clinical monitoring of patients, use of other services providers and lack of registers and ART cards.

4.3.2.2.3.1  Dysfunctional equipment

This sub-category refers to registered nurses explaining that machines used for monitoring patients had been out of order although they were able to conduct other tests and in some cases are not available at all. One of the participants elaborated on the unavailability of the CD4+ machines.

‘For example we do not have CD4+ machines to monitor patients.’

Another participant reiterated the lack of monitoring of patients due to unavailable CD4+ machines.

‘We are therefore not monitoring patients well especially the CD4+ count.’

A participant explained that even though they had the CD4+ machine it was broken;

‘The CD4+ machine has been broken for more than a year now, but as for other lab tests, we still do them, but for CD4+ we have not been doing it.’

Another participant explained that they did conduct other blood tests but not CD4+ count;

‘Yes we monitor their blood tests, except the CD4+ count because the machine is not working. But other tests are done.’

Another participant further explained that they did not conduct any HB monitoring for patients on AZT as the machine was also not functional;
‘But there patients on AZT who need to have their HB checked and we are in a dilemma to continue giving the treatment and we do not have a way of checking the HB as we know that a side effect of taking AZT is that it reduces the HB level.’

Another participant reiterated on the fact that they also did not monitor the HB of patients as the machine is out of order;

‘We used to have a machine for checking the HB level but now we no longer have it. It’s broken.’

Another participant further explained that the machine at the district hospital was not functional and they could no longer conduct the syphilis test (VDRL) as well due to unavailable slides;

‘Even the one at the hospital is not working. Even VDRL we were doing it ourselves. The slides for this one are not there. If we can have those then at least we can try to manage the patients locally without increasing the patient loads at the hospital lab.’

One of the patients explained their experience that they did not undergo routine tests due to lack of a CD4+ machine at the facility;

‘This is the second year and now even going to the third year without a CD4+ machine. No CD4+ count is being done. But blood for other tests is being taken like for kidneys and the liver. The CD4+ is a challenge.’

4.3.2.3.2 Lack of registers and ART cards

This sub-category refers to registered nurses explaining that the documents were not accurately complete as they sometimes ran out of registers. One participant explained;

‘Sometimes we run out of registers and they take a long time before we get them.’
Another participant reiterated;

‘Even us, the register gets full and we use an ordinary exercise book and when the registers arrive we then transfer the information.’

Another participant explained that they also ran out of ART cards;

‘Not only registers but also ART cards. And it takes some time to get the cards.’

Registered nurses explained that documentary evidence was partially adequate at their facilities due to unavailability of registers and some challenges in the implementation of the ART program. One participant explained;

‘The documents are partially complete as the registers are sometimes not available.’

Another participant also said that the documents were partially complete as there were some challenges in making them accurate;

‘The documents are never complete. There are some challenges.’

4.3.2.2.3.3 Wrong clinical monitoring of patients

This sub-category refers to registered nurses explaining their experiences of doing clinical monitoring of patients although it was wrong. This was mainly attributed to the challenges faced in the implementation of the program. One participant stated;

‘But for others we just do clinical monitoring.’

Another participant reiterated that they only managed patients clinically due to the circumstances although it was wrong;

‘But it is wrong. Sometimes the patient can look fine when the CD4+ count is gone. It is not correct but due to the circumstances that is all we can do.’
Another participant further explained that there is no monitoring of patients working in the Republic of South Africa and this was viewed as a major concern; One participant explained;

‘Except for patients who are working in South Africa; they usually send their relatives and we always ask them to ask the patients to come for routine tests and they usually do not come. This is not right.’

Participants, however, stated that they did encourage patients to come for monitoring regularly;

‘We encourage them to come.’

‘They tell us when they are going to come like in April for the Easter holidays and we take the bloods then.’

Registered nurses further explained that patients working in RSA were not seen for as long as six months and that was viewed as yet another concern. One registered nurse explained;

‘Because what we see is that the patient comes and then disappears for six or so months before they come again.’

Another participant viewed this as resulting in a dilemma in the management of patients working in RSA either to withdraw treatment or continue giving treatment;

‘The major challenge that we have are these people working in South Africa. You find that if he comes today, next month he sends somebody, because he is in Capetown or Pretoria. We advise them that maybe it’s better to take transfer, but they say they do not trust the tablets there and find it best to collect drugs from here. So they will be sending somebody because it’s expensive and they take even six months. We try to advise the relatives and you get caught up on whether you continue giving the drugs or you should stop. So it becomes a problem. You advise the relative and you get caught up as to whether I should continue giving the drugs or I should stop. If I stop or withdraw the treatment, maybe this was a good patient taking the medicine properly and if I stop the patient will become
sick. If I continue, maybe this patient needs close monitoring. So really it becomes a challenge. This is a complicated situation.’

Another challenge elaborated on was the inability to trace whether patients had actually been receiving treatment in RSA since no proof was available as one participant explained:

‘And when we ask them they say they were getting treatment in RSA but there will be nothing written down as proof that they have been getting medication. So you are not sure whether they have actually been taking the medication or not. So if they can work together maybe it can get better.’

On the contrary another participant explained that patients actually did get their medication in RSA;

‘But some of the patients honestly were getting their medication in South Africa but not all. Some of them tell us that they were taking their medication but as was said they do not have any written proof. But some of them do have some proof, like one patient who seemed to be registered for ART in both countries.’

A participant also explained that they used an appointment book to check if patients did actually come for appointments set;

‘Usually we have an appointment book in which we book them and we record the patients that we expect on a particular day.’

Registered nurses strongly felt that there needed to be a medical arrangement between RSA and Lesotho to ensure the continued monitoring of patients. One participant explained;

‘If RSA and Lesotho can work together to assist so that they can get their medication while they are there and should they come back home they should be able to continue getting the care as long as they have something written down.’
4.3.2.3.4 Use of other service providers

This sub-category refers to participants explaining that patients used other service providers to have their CD4+ count checked. One of the registered nurses stated;

‘For those who can afford to go to Mafeteng because we are serviced by the Lab there, they go there.’

Patients also acknowledged that they tried to use other service providers so as to get their CD4+ count checked. A patient further explained that they had been advised to seek CD4+ count from other facilities;

‘They have informed us about the seven clinics on the paper just behind you. Those are the facilities from which CD4+ tests are being done.’

An unfortunate experience elaborated on was that patients had to personally go to the facilities that had CD4+ machines. One participant said;

‘So an individual personally goes there at their own extra expense.’

Patients also explained that not all facilities with the CD4+ machines were willing to assist them as they too were not willing to expend their resources. One participant explained;

‘The problem with those clinics, especially Facility X, is that they refuse to take bloods to check the CD4+. It is specifically the people who work there that refuse to do that. And they send us back. So now we don’t know what to do. Others are helped in other facilities, like Facility Z, they are helped and the bloods are taken every Wednesday. And they do not ask where you are from.’

The participant further explained challenges with other facilities that only checked CD4+ for patients they had initially tested;

‘But the people at Facility X want to only check the CD4+ of patients that they have tested. They are the same as those from the Facility Y. They also only check CD4+ for the patients that they tested. If you are already sick they also refuse to check your CD4+.’
Another challenge experience explained by the participant was the lack of transport to aid in the carrying of blood specimens;

‘AT facility X they say the bloods must come from this facility already being taken because they do not have adequate staff. But now another problem is that this facility does not have its own transport.’

4.3.2.2.4 Duration of ART services delivery

This category refers to registered nurses explaining that the amount of time a individual spends seeking ART services varied either depending on the conditions of the service provider, number of patients to be seen or the availability of basic utilities.

One participant explained;

‘It depends on the condition of the patient and the person who is working with the patients.’

4.3.2.2.4.1 Depends on conditions of services provider

This sub-category refers to patients explaining an experience that it was also dependent on other duties that the nurses had to perform at the same time. One participant explained;

‘Hmmm! It also depends on other duties the nurses have to do.’

Another participant reiterated;

‘Sometimes there are disturbances from people from other agencies who will come to see the registers and hence the nurses stop giving us the services to attend to those people. They will come and finish seeing the patients later.’
4.3.2.2.4.2  Depends on the number of patients

This sub-category refers to patients explaining their experiences that time spent at the facility depends on the number of patients seeking services. One participant explained;

‘We get the services on time but it depends on how many patients are in front of the queue before me.’

Another participant added that it was also dependent on the day of the week;

‘It also depends on the day because on some days there are many patients. Like today you see we are still here it means there were many patients.’

Another participant reiterated;

‘It depends on how many the nurses are on that day.’

4.3.2.2.4.3  Availability of basic utilities

This sub-category refers to patients elaborating on how attending to basic needs of water affected the time spent at facilities. A participant stated;

‘Like now you see that there is no water and now the vehicle from the hospital has brought water for the nurses. So they had to stop and get the water for their houses.’

Another participant reiterated;

‘Like now, the vehicle that has brought water is here. So they have to attend to it and in the meantime the services have stopped.’
4.3.2.2.6 Treatment defaulters

This category involves registered nurses explaining experiences that some of the patients default their treatment due to work commitments. The sub-category that emerged from data analysis was work commitments.

4.3.2.2.6.1 Work commitments

This sub-category involves registered nurses elaborating on experiences of how difficult it is to monitor individuals working in South Africa as they spend even more than six months away from Lesotho on work commitments.

One participant explained;

‘The major challenge that we have are individuals working in South Africa. You find that if he comes today, next month he sends somebody, because he is in Cape Town or Pretoria. We advise them that maybe it’s better to take transfer, but they say they do not trust the tablets there and find it best to collect drugs from here. So they will be sending somebody because it’s expensive and they take even six months. We try to advise the relatives and you get caught up on whether you continue giving the drugs or you should stop. So it becomes a problem. You advise the relative and you get caught up as to whether I should continue giving the drugs or I should stop. If I stop or withdraw the treatment, maybe this was a good patient taking the medicine properly and if I stop the patient will become sick. If I continue, maybe this patient needs close monitoring. So really it becomes a challenge. This is a complicated situation.’

Another participant further suggested the need for South Africa and Lesotho to work together to assist personnel to avoid defaulting on their treatment;

‘If RSA and Lesotho can work together to assist so that they can get their medication while they are there and should they come back home they should be able to continue getting the care as long as they have something written down. Because what we see is that the patient comes and then disappears for six or so months before they come again. And when we ask them they say they were getting treatment in RSA but there will be nothing written down as proof that they have been getting medication. So you are not sure whether they have actually
been taking the medication or not. So if they can work together maybe it can get better.’

4.3.2.2.7 Inefficient ART services

This category involves registered nurses and patients attesting to the inefficient ART services as a result of lack of knowledge, multiple testing, too many partners and poor remuneration of lay counsellors.

4.3.2.2.7.1 Lack of knowledge

This sub-category refers to registered nurses explaining views that there was lack of knowledge amongst HIV positive patients regarding testing multiple times. Patients were seen to conduct the HIV test more than once for various reasons. One participant explained;

‘That’s why it’s being wondered as to why after all our efforts on ART there is no change at all. In fact the incidence and prevalence is on the rise. And patients have a right to go anywhere. Sometimes the patients do not understand and hence the reason why they test many times and they test anywhere.’

Another participant also explained the challenge of multiple testing;

‘I think we are number one or two in the world just because a person tests more than once and even tests ten times and each time it’s being recorded.’

Another participant also explained the desperation in the need to have the CD4+ counts of patients checked to be resulting in multiple testing as well;

‘Such a situation results from the desperation to know the CD4+ count when one is not feeling well. So it is actually happening. And they just go and test again so that they know the CD4+ count.’

Patients reiterated views of the need to prevent multiple testing as it resulted in false statistics. A participant explained:
‘A problem that can arise is that for some of us who will be desperate to get the CD4+ count done, we end up testing again at the facilities that have such machines. And it means that one is actually recorded twice in the system. Even if they are already on ARVs.’

Another participant further explained that other patients then preferred to change the service provider so as to get the CD4+ checked;

‘There are many issues. Another issue is that some of us stop taking the ARVs at this facility and then decide to go to another facility at which they will be denied and be told to return to their original facility and get a transfer. But such an individual would prefer to buy a new health book and start the whole process again.’

Patients further explained views that multiple testing resulted in wrong statistics and it needed to be addressed urgently. One participant said;

‘The second one is that the NGOs helping the Ministry of Health, on the testing issues, they don’t work well with the clinics. For instance in this village, those NGOs just get into the village and start testing individuals without informing the clinic. And there are some of us who do not understand, who then test again regardless of them being on ART or pre ART period. That is why this country has statistics and we are number two in the whole world. I personally refuse even though I might not be well educated in maths. Around 2004 it was maybe seven or so people who were positive.’

One patient viewed wrong statistics to be a result of lack of understanding;

‘We have the wrong statistics to be honest. I can test here and be found to be positive. But my CD4+ is not taken. I go to facility Y, and I test again. It means that I have been tested twice. In another instance, maybe I have been tested but do not understand. I then go to facility A and I test again. It means I have been tested twice again. I can even go to another facility B and be tested again. Just because I do not really accept that I am HIV positive. And it means one person has been recorded more than once. Those statistics are wrong.’
There was a suggestion from both patients and nurses to use an electronic system to identify patients who are already in the ART system. A participant (registered nurse) said:

‘There could be an electronic card that is given to identify HIV patients or an electronic sticker on the health books. But the patients also can change the health books and buy new ones. It’s a challenge! We need something new.’

Another participant (patient) even suggested the use of National identity cards as an option to be able to identify patients already in the system:

‘There needs to be way of recording the patients maybe using IDs so that it can be picked up who has tested before and where so that they are not recorded twice or even more.’

4.3.2.2.7.2 Untoward effects of incentives

This sub-category refers to registered nurses explaining views that the giving of incentives had resulted in many patients testing more than once as they also wanted to be given incentives. Registered nurses explained that they were aware of this and there was a partner who provided them with forms filled by patients, only to realise that the patients were already in their registers. One participant said:

‘Some of the partners have forms which they send back to us here at the clinics. And when we check we find that this patient is already on ART but they have been recorded as a new HIV patient with that partner.’

Another participant further reiterated on this view that the giving of incentives resulted in patients testing for HIV more than once;

‘Even those on ART will test again since they want the incentive.’

Another participant explained that this multiple testing resulted in the never reducing HIV incidence rate;
‘Hence the reason why our statistics are not changing at all. And it means that patients have been recorded twice.’

4.3.2.2.7.3 Too many partners

This sub-category refers to registered nurses explaining views that there were many partners involved in the propagation of the ART program and there seemed to be lack of monitoring and coordination of their activities. This was viewed to have resulted in many patients being recorded more than once as new HIV cases. One participant explained;

‘Another challenge is that there are too many partners. They come to screen for HIV and offer incentives to the patients. So you find that an individual will test again and again as long as they can get something in return.’

Another participant added that partners seem to work to meet their targets regardless of the effects they might have;

‘Even now there is a partner that has been given forty days to test for HIV and they are just doing so. Each tester must have at least six hundred individuals tested. So that really is a problem. They have set targets and they are just testing.’

4.3.2.2.7.4 Poor remuneration

This category involves patients explaining experiences of being paid low salaries for working as HIV/AIDS lay counsellors. One participant explained;

‘There are other problems that HIV positive patients have due to lack of adequate care. You will also find that some of us have been lay counsellors and unfortunately the work we do is not appreciated at all. We are only given a meagre salary of only M700.00. Such a salary takes more than five years. Those that are new recruits will also start at the same amount of money. It doesn’t make sense. Even when there are salary adjustments from the Government, we are not given any. We just continue to be given M700.00. And one wonders why? It makes us demoralised as lay counsellors. A lot of money is returned from NGOs because of lack of use. But we are here and crying for more money. For more than ten years. I feel the Ministry is not looking out for us. Let me end there.’
Another participant added the view of the need to involve HIV positive individuals in decision making:

‘But we would be happy that when there are changes! Note that people are making money in the name of HIV and AIDS and yet we the patients are nowhere to actually be informed. Even when the Government asks for money, it is in the name of HIV, but we are not involved or even aware of the benefits or changes occurring.’

Another participant reiterated the need to involve HIV positive individuals as much as possible in ART activities;

‘It’s like we are making other people survive better in the name of HIV.’

4.3.2.3 Theme 3: Medication availability

This theme refers to participants elaborating on the availability and accessibility of medications at their facilities. The category of sometimes available and sub-categories of low stock, replacement of unavailable drugs emerged from data analysis.

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4.3.2.3.1 Sometimes unavailable

This category refers to registered nurses explaining their experiences that medication (including ARVs) was sometimes not available at their facilities. One participant explained;

‘We have stock-outs once in a while unless they have not given us at NDSO but otherwise they are available. So we can say most of the time they are available.’
Another participant also stated that at times medication is not available;

‘Sometimes but not always.’

Patients explained the view that the short supply resulted in interrupted treatment. One participant stated;

‘We were able to come back. But for others you would find that they were not able to come back.’

Another participant further explained an experience that only patients working in RSA were given an adequate supply of ARVs during such times;

‘But for those who worked in South Africa they were even given a supply for three months as it is known that they take a long time. And should the supply run out then there will be a problem in the health of that individual.’

4.3.2.3.1.1 Low stock

This sub-category refers to registered nurses explaining views that unavailability of drugs could be due to a lack of stock from the supplier. One participant said;

‘Unless when we order they do not supply us, but we still ask from other clinics and hospital.’

Another participant reiterated an experience that sometimes they have stock outs of drugs due to unforeseen challenges;

‘Sometimes we have stock outs, We have stock-outs once in a while unless they have not given us at NDSO but otherwise they are available.’

Patients explained experiences that there were times ARVs were in short supply due to lack of delivery from the supplier. One participant said;
'For us who have been on ARVs for a long time it has happened that there were times when the ARVs were few. And maybe this week you get ARVs for maybe 3 days and you are asked to come back after some days. The reason was that the ARVs were not available.'

Another participant explained that short supplies of drugs used to be experienced in the past;

'It used to happen a long time ago not nowadays. By then we were given options to buy from the chemist shop. But I last experienced it a long time ago.'

This participant further explained that they were usually informed about the short supply by the nurses;

'But the nurses would tell us that the drugs were ordered but had not been delivered as the supplier did not have them.'

4.3.2.3.1.2 Replacement of unavailable drugs

This sub-category refers to registered nurses explaining that they replaced unavailable drugs if they did not receive stock of drugs that is crucial in patients care.

'Like now they did not give us some promethazine injection and syrups, we asked Scott to give. We sent someone there to collect.'

Another participant explained that the missing drugs were replaced with any similar drugs that were available;

'We replace the drugs with other drugs. You find that only one drug is not there and we replace it with another one.'

Another participant reiterated that they replaced unavailable drugs with the ones in stock;

'Like panado we replace with other analgesics.'
One patient reiterated an experience that in some cases nurses sought supply from other facilities;

‘Sometimes the nurses asked from other clinics and even the nearby hospital and those of us from nearby were asked to constantly check if they had arrived.’

4.3.2.4 Theme 4: Staffing adequacy

This theme refers to registered nurses and patients explaining views whether or not they were adequately staffed at their facilities. The category of inadequate human resource and sub-categories of inadequate services, large population and work overload emerged from data analysis.

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4.3.2.4.1 Inadequate human resource

This category refers to registered nurses expressing dismay at how they are not adequately staffed at their facilities.

‘Exclaims Achhhh!!’

Another participant also said they were short staffed;

‘No, we are not enough. No, we are not adequately staffed.’

Another participant reiterated;

‘Even the human resource is a challenge.’

Another participant explained they are short staffed and do not provide services well;
‘We are so short staffed that sometimes we just offer basic services. It is too much.’

Another participant explained that there could be workplace disaster in cases where other critical services are required at the same time as the ART.

‘MmmH!! Disaster. We are doing deliveries there and it means if there are deliveries it means more shortage of staff.’

Patients also explained experiences that staff at health facilities was not enough as services were interrupted in cases where women in labour had to be assisted;

‘But I think they are not enough. Because if there is a woman to deliver, they stop assisting us so they assist to do the delivery.’

Another participant added a view that it resulted in longer time being spent at the facilities;

‘And the patients wait for a long time.’

4.3.2.4.1.1 Inadequate services

This sub-category refers to registered nurses explaining experiences that they were not able to provide adequate and comprehensive services as they were not adequately staffed;

‘With this supermarket approach it is very difficult to get all services done properly as we are few.’

Participants also explained that since they conducted deliveries it was therefore not easy to get a good balance on service provision at the facilities, as in the except below;

‘We are doing deliveries there and it means if there are deliveries it means more shortage of staff.’
4.3.2.4.1.2 Large population being served

This sub-category refers to registered nurses explaining that the served large populations in their health service areas and nursing staff was not adequate to serve them. One participant explained;

‘As for the population, it’s fifteen thousand nine hundred and something. We are 2 registered nurses and one nurse clinician.’

Participants also expressed concern over the number of patients they see per day.

‘We see more than 100 patients per day in total at our facility and we are only 3.’

Another participant expressed concern over the use of the ‘supermarket’ approach for service delivery as it was viewed to result in the provision of inadequate services.

‘With this supermarket approach it is very difficult to get all services done properly.’

4.3.2.4.1.3 Work overload

This sub-category refers to registered nurses and patients explaining their experiences that there was too much work to be done in their delivery of services at the facilities. One participant stated;

‘We are doing deliveries there and it means if there are deliveries it means more shortage of staff.’

Another participant reiterated that there were many patients on ART;

‘There are so many patients on ART and they come in large numbers everyday. So it’s tiring.’

Another participant explained an experience that there was too much work to be done resulting in poor tracking of patients;
'So if I am working from eight to three, at three I will be very exhausted to even look at the appointment book to see if people who were supposed to come did show up. So tracking of those who defaulted can be missed because I will be tired.'

One participant reported an experience that there were other responsibilities in the workplace and therefore more staff was needed;

'We could have addition of three more registered nurses, because we still have to do other duties.'

Other participants reiterated the need to have more staff at their facilities to improve the situation.

'At least if we are 4.'

'Maybe even five to cater for one who might be on leave.'

Patients also felt that staff was not adequate and needed to have additional members added. One participant explained an experience;

'Again on Mondays and Fridays only two members of staff are on duty as they take turns for off days. That is one registered nurse and a nurse assistant. So if a woman in labour arrives on those days, it means that the services will be received very late as the delivering woman has to be helped.'

Another participant even suggested that five nurses could improve the situation;

'At least if they are five, I think it will really help.'

**4.3.2.5 Theme 5: Confidence and competence of ART service providers**

This theme refers to registered nurses and patients explaining that they were confident and competent in ART services provided. Categories of confident, knowledgeable and competent and refresher courses necessary emerged from data analysis.
4.3.2.5.1.1  **Confidence**

This category involves registered nurses explaining a view that they were certain to provide ART services. One participant said she was confident and the rest were nodding their heads in agreement;

‘*Confidence, yes.*’

4.3.2.1.2  **Knowledgeable**

This category refers to registered nurses expressing a view that they had the necessary knowledge to provide ART services. One participant explained;

‘*I am knowledgeable even from just my basic training.*’

Patients also felt that health care personnel were qualified and competent to provide ART services. One of them explained a view they had;

‘*They seem to have enough knowledge as we receive the services like always.*’

4.3.2.1.3  **Competence**

This sub-category involves registered nurses stating that they were competent in the provision of ART services. One participant said;

‘*Competence, yes.*’

Another participant expressed the view that they were knowledgeable, competent and confident to provide ART services;
‘Confidence is there, enough knowledge and skill is there, competence is there.’

4.3.2.5.1.4 Refresher courses necessary

This category refers to registered nurses expressing the view that despite the confidence, knowledge and competence, they still needed to have regular refresher courses to keep them updated on the ART program. One participant explained;

‘Always we need some refresher courses to remind us of what is supposed to be happening.’

Another participant reiterated the need for refresher courses;

‘But we still need refresher courses, like was said to keep us updated on ART.’

Another participant explained that the refresher courses would be a way of reminding them of the correct ART provision processes;

‘Something to remind us that we are on the right track.’

4.3.2.6 Theme 6: Satisfaction with ART services

This theme involves registered nurses and patients explaining views whether they were satisfied with the ART services provided. One category of partially satisfied and sub-categories of dysfunctional equipment, stigmatisation and drugs evoked hunger emerged from data analysis.
### Theme

**4.3.2.6 Satisfaction with ART services**

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### 4.3.2.6.1 Partially satisfied

This category involves registered nurses and patients expressing views that they were partially satisfied with the ART services owing to dysfunctional equipment, stigmatisation or the fact that the drugs evoked hunger resulting in poor monitoring of patients.

#### 4.3.2.6.1.2 Dysfunctional equipment

This sub-category refers to registered nurses expressing views that dysfunctional equipment resulted in poor monitoring of patients. One participant explained;

>'We are not satisfied. The CD4+ machine is not functioning even though we are doing something.'

Another participant reiterated that the lack of equipment was a challenge in almost all health centre facilities;

>'But the CD4+ issue is a problem everywhere and ........I don`t know.'

One participant said they were not satisfied due to poor monitoring of patients;

>'I am not satisfied. If we can have something to monitor the CD4+ on our own and not to send somewhere else.'
4.3.2.6.1.2  Deaths due to cervical cancer

This sub-category refers to registered nurses expressing views that they were not satisfied with ART services due to deaths occurring as a result of lack of skill to screen for other conditions such as cervical cancer. One participant explained;

‘There are many patients who are not on ART and we have lost 2 to 3 due to cervical cancer. So if we can be able to screen for that as well.’

Another participant reiterated;

‘That’s true. There are many patients who are not on ART and we have lost 2 to 3 due to cervical cancer. And we all know that cervical cancer is on the rise in HIV positive individuals not on ART.’

4.3.2.6.1.3  Drugs evoke hunger

This sub-category involves patients explaining their experiences that ARVs evoked excessive hunger after taking them and hence their partial satisfaction in the ART. One participant explained;

‘It’s just that many patients on ART complain of hunger. The tablets make them feel hungry. And usually they end up not taking them correctly as they make them feel hungry.’

Another participant also added their experience;

‘Yes. You will find that when we come to the clinic we usually have some packed food. Truly speaking they make us abnormally hungry.’

4.3.2.6.1.4  Stigmatisation

This sub-category involves patients explaining that they experienced stigmatisation especially in the work place, as one participant elaborated;
‘Others who are employed, when they tell their employers that they are on ART, they send them away from work.’

Another participant also explained that ART patients now even hide their status for fear of being denied work;

‘Even for prospective employers we are now afraid to tell them that we are HIV positive as they will not understand that we must collect the drugs every month. Some employers tell us that we get offs only after 2 months. And at the clinics I would have only been given a supply for one month.’

4.3.2.7 Theme 7: Monitoring and evaluation

This theme refers to registered nurses explaining their experiences that there was a monitoring and evaluation system for the ART program and one category of incomplete emerged from data analysis.

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4.3.2.7.1 Incomplete

This category involves registered nurses explaining their experience that monitoring and evaluation was done by some non-governmental organisations namely Elizabeth Glaser Paediatric Aids Foundation (EGPAF) and not by their own facility, as described by one participant;

‘EGPAF is the one collecting statistics and after a while they give us feed-back.’

Another participant also reiterated that EGPAF conducted evaluations of their performance;

‘Usually what happens, we have PHC planning meetings. But last quarter we were not represented. They advise on our performance and areas that need improvement.’
Participants also cited District Health Management Team (DHMT) as the governmental entity which annually monitored and evaluated their performance on ART;

‘But also the DHMT and it is done annually.’

Another participant reiterated that the DHMT did monitoring and evaluation and feedback was given on a monthly basis and in this case some feedback was provided;

‘Through DHMT and we go to Morija every month for statistical evaluation. They give us some feedback.’

4.4 DATA INTEGRATION

As described in Creswell and Plano-Clark (2011:221), data analysis in mixed methods research is done to merge the results by comparing the two data sets or to merge the data after the researcher transforms one of the data sets. The authors further explain that analysis occurs at three stages in one phase of the research; with each data set, when comparison or transformation occurs and after the comparison if completed (Creswell & Plano-Clark 2011:221). In this study the researcher used the seven stages of data analysis suggested by Onwuegbuzie and Teddlie (2003) in an article by Leech and Onwuegbuzie (2010:64-65) as described below:

- Data reduction which refers to reducing the dimensionality of both qualitative and quantitative data. The researcher reduced the data sets by combining responses from the information into common concepts or themes.
- Data display which involves describing pictorially the qualitative data using either graphs, matrices, lists, venn diagrams or photographs and quantitative data using either graphs or tables. Results were displayed using diagrams, tables and matrices.
- Data transformation involving the conversion of quantitative data into narrative data that can be analysed qualitatively and or qualitative data are converted into numerical codes that can be presented statistically. Quantitative data was converted and described qualitatively. The researcher read the quantitative descriptions of data and statistically significant concepts were described qualitatively.
• Data correlation which involves qualitative data being correlated with quantitative data. The converted quantitative data was then related to qualitative data and similar concepts put together.

• Data consolidation where in both qualitative data and quantitative data are combined to create a new consolidated data set. The correlated data were then combined into common concepts and a new description which accommodated both data sets developed.

• Data comparison includes comparing qualitative data with quantitative data. The researcher compared the data sets to identify whether they provided the same information on the ART program and that meaning was not lost when consolidated.

• Data integration in which qualitative and quantitative data are merged into a coherent whole. The data sets were combined and described under common concepts as shown below.

This section merges quantitative data with qualitative data in line with the study design. Quantitative data is displayed side by side with qualitative themes and was compared using questions asked in both strands of the study (data transformation, data correlation, data consolidation, data comparison and data integration. Mixed methods design was used in this study as the researcher envisaged collecting both qualitative and quantitative data to answer separate but related study questions which are;

• What is the ART program in the Primary Health Care setting of Lesotho?
• What are the experiences and views of both registered nurse midwives/clinicians and HIV positive patients on the ART program in the primary health care setting of Lesotho?

4.4.1 Number of patients seen per week

Quantitative showed an average number of 173 patients seen at facilities every week whilst qualitative results revealed a theme of staffing adequacy which had one category of inadequate human resource and sub-categories of large population being served. Both sets of results are therefore conclusive that there generally were a large number of patients that sought ART services at PHC facilities.
Table 4.28: Data integration: Number of patients seen

<table>
<thead>
<tr>
<th>QUANTITATIVE RESULTS</th>
<th>QUALITATIVE RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Response</td>
</tr>
<tr>
<td>Number of patients seen per week</td>
<td>Mean=173 patients seen every week per facility</td>
</tr>
</tbody>
</table>

4.4.2 Number of days ART and PMTCT services were offered

Quantitative results showed more than 50% of the participants reported that services were offered for at least five (5) days and when necessary. Qualitative results showed in the theme of ART service delivery a category of weekly services meaning they were offered on a weekly basis. It can therefore be concluded that both sets of results revealed that ART and PMTCT services were offered on a weekly basis at PHC settings.

Table 4.29: Data integration: Number of days ART and PMTCT services are offered

<table>
<thead>
<tr>
<th>QUANTITATIVE RESULTS</th>
<th>QUALITATIVE RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Response</td>
</tr>
<tr>
<td>Number of days ART services are offered</td>
<td>71% said 5 days</td>
</tr>
<tr>
<td></td>
<td>12% said services given when necessary</td>
</tr>
<tr>
<td>Number of days PMTCT services are offered</td>
<td>53% said 5 days</td>
</tr>
</tbody>
</table>

4.4.3 Average time spent seeking ART and consulting a nurse

Quantitative results show that majority of the participants reported that it takes 30 minutes to an hour to provide ART services. Participants did, however, allude to shortage of staff as a challenge that affected time spent by patients at facilities. Qualitative results in the theme of ART service delivery emerged a category of duration of ART services which had sub-categories of: depends on conditions of service provider, depends on availability of basic utilities and depends on the number of patients. It can be concluded that there was variation in the time patients spent seeking ART services or consulting nurses as shown in either quantitative or qualitative results.
Table 4.30: Data integration: Average time spent seeking ART and consulting a nurse

<table>
<thead>
<tr>
<th>QUANTITATIVE RESULTS</th>
<th>QUALITATIVE RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Response</td>
</tr>
<tr>
<td>Average time spent</td>
<td>40% said 30 minutes</td>
</tr>
<tr>
<td>seeking ART services</td>
<td>17% said 1 hour</td>
</tr>
<tr>
<td>Average time spent</td>
<td>56% said 30 minutes</td>
</tr>
<tr>
<td>consulting a nurse</td>
<td>16% said 1 hour</td>
</tr>
</tbody>
</table>

4.4.4 Availability of ARVs and other drugs

Quantitative results show that majority of the participants strongly agreed (66%) or agreed (27%) that ARVs and other drugs were available at their facilities. Participants did, however, cite the stock outs of drugs as a challenge that they experienced sometimes. Qualitative results yielded a theme of medication availability with a category of sometimes unavailable and sub-categories of low stock and replacement of unavailable drugs emerged from data analysis. It can be concluded that the results show that ARVs and other drugs were usually available although in some cases they were not and the nurses had to make alternative decisions to ensure patients received the medication.

Table 4.31: Data integration: Availability of ARVs and other medications

<table>
<thead>
<tr>
<th>QUANTITATIVE RESULTS</th>
<th>QUALITATIVE RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Response</td>
</tr>
<tr>
<td>Availability of ARVs</td>
<td>66% strongly agreed</td>
</tr>
<tr>
<td></td>
<td>27% agreed</td>
</tr>
<tr>
<td>Availability of other Drugs</td>
<td>24% strongly agreed</td>
</tr>
<tr>
<td></td>
<td>51% agreed</td>
</tr>
</tbody>
</table>

4.4.5 Staff adequacy

Quantitative results show that majority of the participants disagreed (19%) or strongly disagreed (28%) that they were adequately staffed. Participants further stated the
challenge that they were not adequately staffed at their facilities as they served too many patients. Qualitative results yielded a theme of staffing adequacy with a category of inadequate human resource and sub-categories of inadequate services, large population being served and work overload. Both sets of results show that participants were not pleased with the staffing at their facilities as they were not adequate to provide ART services.

<table>
<thead>
<tr>
<th>Table 4.32: Data integration: Staff adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITATIVE RESULTS</strong></td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>Staff adequacy</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

4.4.6 Staff qualified and competent

Quantitative results show that majority of participants strongly agreed (58%) and agreed (31%) that staff was qualified and competent to provide ART services. Participants did, however, they needed more training on the provision of ART services and supportive supervision was minimal. Qualitative results show that a theme of confidence and competence of ART service providers with categories of confident, knowledgeable, competent and refresher courses necessary emerging from data analysis. It can therefore be concluded that both sets of participants felt that staff providing ART services was qualified, confident, knowledgeable and competent in the execution of their duties although they needed more training or refresher courses and supportive supervision.

<table>
<thead>
<tr>
<th>Table 4.33: Data integration: Staff qualified and competent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITATIVE RESULTS</strong></td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>Staff qualified and competent</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
4.4.7 Adequacy of resources and equipment to provide ART services

Quantitative results show that majority of the participants strongly agreed (28%) and agreed (42%) that resources and equipment were adequate to allow for the provision of efficient ART services. Participants did, however, state lack of equipment as one of the challenges in the provision of ART services. Qualitative results show a theme of ART service delivery with a category of inadequate services which had sub-categories of dysfunctional equipment, lack of ART registers, wrong clinical monitoring of patients and use of other service providers. The two data sets are congruent as it can be concluded that although ART services were being offered there were challenges and were therefore not offered optimally.

<table>
<thead>
<tr>
<th>Table 4.34: Data Integration: Adequacy of resources and equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Adequacy of resources and equipment</td>
</tr>
<tr>
<td>Adequacy of resources and equipment</td>
</tr>
</tbody>
</table>

4.4.8 Adequate and efficient ART services

Quantitative results show that majority of the participants strongly agreed (35%) and agreed (30%) that the ART services they offer were adequate and efficient. Qualitative results yielded a theme of ART services delivery with a category of inefficient ART services which had sub-categories of lack of knowledge, untoward effects of incentives, too many partners and poor remuneration. The two data sets are congruent as it can be concluded that even though ART services were being offered they were not adequate and efficient due to some challenges in their delivery as seen in the lack of knowledge of some patients, use of incentives by some partners and too many partners being involved in ART.
### Table 4.35: Data integration: Adequacy and efficiency of ART services

<table>
<thead>
<tr>
<th>Code</th>
<th>Response</th>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of adequate and efficient services</td>
<td>35% strongly agreed</td>
<td>ART service delivery</td>
<td>Inefficient ART services</td>
<td>Lack of knowledge</td>
</tr>
<tr>
<td></td>
<td>30% Agreed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Untoward effects of incentives</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Too many partners</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Poor remuneration</td>
<td></td>
</tr>
</tbody>
</table>

#### 4.4.9 Services routine, accurate and efficient to allow accessibility

Quantitative results show that majority of the participants strongly agreed (48%) and agreed (42%) that the ART services were offered routinely allowing patients to access them. Participants did, however, state a challenge that the ART services were not adequate and more could be done to improve the service. Qualitative results yielded a theme of ART service delivery with a category of variety of services which subcategories of accessible and another which specified the different services that were being offered. The two data sets are congruent as it could be delineated that the ART services were offered routinely and participants were able to cite some of the services offered.

### Table 4.36: Data integration: Routine, accurate and efficient services

<table>
<thead>
<tr>
<th>Code</th>
<th>Response</th>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services routine, accurate and efficient to allow accessibility</td>
<td>48% strongly agreed</td>
<td>ART service delivery</td>
<td>Variety of services</td>
<td>Consultation, etc</td>
</tr>
<tr>
<td></td>
<td>42% agreed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Accessible</td>
<td></td>
</tr>
</tbody>
</table>

#### 4.4.10 Time allows patients to receive all ART services

Quantitative results showed that majority of the participants strongly agreed (57%) and agreed (34%) that time spent at the facilities allowed patients to receive all ART services. Participants did state shortage of staff and too many patients as challenges that also affected the time that ART patients spent at the facilities. Qualitative results yielded a theme of ART service delivery and a category of duration of ART service delivery with sub-categories of depends on conditions of service provider, depends on availability of basic utilities and depends on the number of patients. It can therefore be
concluded that patients did receive all the ART services required (quantitative) although its duration was depended on various factors (qualitative).

Table 4.37: Data integration: Time spent allows patients to receive all services

<table>
<thead>
<tr>
<th>Code</th>
<th>Response</th>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time allows patients to receive all ART services</td>
<td>57% strongly agreed</td>
<td>ART service delivery</td>
<td>Duration of ART service delivery</td>
<td>Depends on conditions of service provider</td>
</tr>
<tr>
<td></td>
<td>34% Agreed</td>
<td></td>
<td></td>
<td>Depends on availability of basic utilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Depends on number of patients</td>
</tr>
</tbody>
</table>

4.4.11 Documentary evidence is adequate and accurate

Quantitative results showed that majority of the participants strongly agreed (31%) and agreed (45%) that documentary evidence was adequate and accurate at their facilities. Participants did, however, cite the lack of equipment as a challenge. Qualitative results show a theme of ART service delivery with a category of inadequate services which has a sub-category of lack of ART registers. It can therefore be concluded that although documentary evidence was available it was not accurate owing to a lack of equipment, being the registers in which to document.

Table 4.38: Data integration: Adequate and accurate documentary evidence

<table>
<thead>
<tr>
<th>Code</th>
<th>Response</th>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentary evidence is adequate and accurate</td>
<td>31% strongly agreed</td>
<td>ART service delivery</td>
<td>Inadequate services</td>
<td>Lack of registers and ART cards</td>
</tr>
<tr>
<td></td>
<td>45% agreed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.4.12 Patients satisfied with ART services

Quantitative results show that majority of the participants strongly agreed (32%) and agreed (46%) that patients were satisfied with ART services even though it could not be ascertained whether they actually did ask the patients. Qualitative results yielded a theme of satisfaction with ART services with a category of partially satisfied which had sub-categories of drugs evoke hunger and stigmatisation. It can be concluded that even though patients seemed to be satisfied with ART services they also felt that there was
still stigma pertaining to their HIV status and the ARVs themselves made them feel hungry.

<table>
<thead>
<tr>
<th>Table 4.39: Data integration: Patient satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITATIVE RESULTS</strong></td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Patients satisfied with ART services</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

### 4.4.13 Job satisfaction

Quantitative results show that majority of the participants strongly agreed (34%) and agreed (44%) that they were satisfied with their jobs. Participants, however, stated challenges of providing inadequate ART services. Qualitative results show a theme of satisfaction with ART services with a category of partially satisfied and sub-categories of dysfunctional equipment and deaths due to cervical cancer. It can therefore be concluded that even though staff was satisfied with their jobs they provided inadequate services due to dysfunctional equipment and some patients had been lost due to inability to screen for cancer.

<table>
<thead>
<tr>
<th>Table 4.40: Data integration: Job satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITATIVE RESULTS</strong></td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Job satisfaction</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

### 4.4.14 Monitoring and evaluation system available

Quantitative results show that majority of the participants strongly agreed (25%) and agreed (36%) that monitoring and evaluating system was available at their facilities. Participants did, however, state lack of supportive supervision as a challenge. Qualitative results yielded a theme of monitoring and evaluation with a category of
incomplete. The results show that even though there was monitoring and evaluation of the ART program it was incomplete as there was lack of supportive supervision.

<table>
<thead>
<tr>
<th>Code</th>
<th>Response</th>
<th>Theme</th>
<th>Category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring and evaluation system available</td>
<td>25% strongly agreed</td>
<td>Monitoring and evaluation</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36% agreed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 OUTCOME OF THE STUDY: DESIGN AND VALIDATION OF THE TOOL

This section of data analysis addresses the third objective of the study which was to develop an evaluation tool that could be suggested for use to assess the ART program in PHC settings of Lesotho. Onwuegbuzie et al (2010:56) provided an Instrument Development Construct Validation (IDCV) process for optimising the development of the quantitative instrument. The authors presented crossover analyses as a key mechanism for IDCV and it is the highest form of combining quantitative and qualitative data collection techniques as the researcher makes use of Gestalt switches (Kuhn 1962) from a qualitative lens to a quantitative lens and vice versa (Onwuegbuzie et al 2010:58). The process of IDCV is understood to involve both inductive and deductive reasoning. Cross over analyses techniques include integrated data reduction (reducing the dimensionality of qualitative data/findings using quantitative analysis and/or quantitative data/findings using quantitative analysis), integrated data display (visually presenting both qualitative and quantitative results within the same display), data transformation (converting quantitative data into data that can be analysed qualitatively and/or qualitative data into numerical codes that can be analysed statistically), data correlation (correlating qualitative data with quantitised/quantitative data and/or quantitative data with qualitised/qualitative data), data consolidation (combining or merging multiple data sets to create new or consolidated codes, variables, or data sets), data comparison (comparing qualitative and quantitative data/findings), data integration (integrating qualitative and quantitative data/findings either into a coherent whole or two separate sets of coherent wholes), warranted assertion analysis (reviewing all qualitative and quantitative data to yield meta-inferences), and data importation (using follow-up findings from qualitative analysis to inform the quantitative analysis or vice
versa). All these crossover analysis techniques involve some level of abductive logic, which involves moving back and forth between inductive and deductive logic. These crossover analysis procedures also involve a form of intersubjectivity (agreement about reality, ultimately, is socially constructed) and involve incorporation of both insiders’ (i.e., emic) views and the researcher-observer’s (i.e., etic) views for instrument development and construct validation and that the balance between the emic perspectives (stemming from the participants involved in the instrument development and/or construct validation) and etic perspectives (e.g., stemming from extant theories and the researcher’s a priori assumptions) is appropriate such that quality meta-inferences can be made. This use of abductive logic, intersubjectivity, and emic–etic perspectives makes the use of mixed research in general and crossover analyses in particular very appealing for instrument development and construct validation and they are confirmed by through criterion related, content related and construct related validity (Onwuegbuzie et al 2010:58-59).

The researcher used the following processes in IDCV:

**Construct conceptualisation**: Involves the researcher being aware of their own personal belief systems related to three dimensions of belief systems: (a) overall worldview, (b) research philosophy, and (c) discipline-specific philosophy (Onwuegbuzie et al 2010:62). The researcher’s beliefs confirm to symbolic interactionism which has a focus on social interactions looking at perceptions, attitudes and values of a community and considering others before self. The researcher understands health to be best described by those directly involved in service provision and the recipients of health services.

In this study the researcher conducted a literature review on the ART program and used the intervention wheel framework as guides in the development of the tool and 14 interventions were incorporated. The interventions included surveillance, screening, case finding, case management, consultation, referral and follow-up, health teaching, counselling, outreach, disease and other health investigation, collaboration, coalition, community organising and advocacy. Local experts were also engaged during the research process and they included a statistician. Focus group discussions were conducted during the research process and an audit trail was developed allowing the researcher to conceptualise the construct (ART program) under study.

*Identify and describe behaviours that underlie the construct*: Onwuegbuzie et al (2010:63-64) explained that in this phase the instrument developer might undergo the
grounded theory analytical steps of open coding (coding the literature and data extracted from the local experts and key informants by chunking the information into smaller segments and then assigning a descriptor, or “code,” for each segment) and axial coding (grouping the codes into similar categories). The developer might also use some form of ethnographic analysis, comprising Spradley’s (1979) analysis procedures of domain analysis (using the relationships between symbols and referents to identify domains), taxonomic analysis (creating a system of classification that catalogs the domains into a visual representation to help the researcher understand the relationships among the domains), and componential analysis (using a visual representation to discover the differences among the subcomponents of domains) (Onwuegbuzie et al 2010:64). The authors further stated that other procedures such as the Delphi technique might be used and whatever data collection and data analysis tools are used, it is essential that a series of rounds is conducted, with each round involving the collection of qualitative and quantitative data until data saturation is reached hence allowing the instrument developer to identify the behaviours underlying the construct of interest (Onwuegbuzie et al 2010:64).

In this study the researcher conducted open coding and axial coding during constant comparison analyses in which both qualitative and quantitative data was analysed and was presented as shown in tables 4.28 to 4.41. A total of four focus groups discussions were conducted and 197 questionnaires were collected. The researcher conducted pre-tests for both the qualitative and quantitative strands of the study and subjected to proposed tool to yet another group of participants to ascertain its feasibility for use in the evaluation of the ART program. This allowed the instrument developer to identify behaviours affecting the ART program and they included:

- Staffing patterns
- Types of ART services offered
- Number of ART and PMTCT patients seen
- Number of days ART and PMTCT services are offered
- Time spent seeking ART services
- Time spent consulting a nurse
- Availability of ARVs and other medications
- Staff adequacy
- Staff qualified and competent
- Adequacy of resources and equipment
- Routine, accurate and efficient ART services
- Time allows patients to receive all services
- Documentation of activities
- Patient satisfaction
- Job satisfaction
- Monitoring and evaluation

**Development of initial instrument:** Once all the behaviours have been identified, the instrument developer starts writing items specifications that link the theory extracted from Phase 1 (etic viewpoint, deductive logic) and the information provided by the local experts and key informants in Phase 1 and Phase 2 (emic viewpoints, inductive logic) and containing all the identified behaviours (e.g., cognitive, affective, psychomotor) (Onwuegbuzie et al 2010:64). The researcher involved experts including a statistician to review the tool for item analysis, relevance and time analysis.

**Pilot test, Design and field test, instrument analysis:** Onwuegbuzie et al (2010:64-65) explained that once the initial instrument has been developed, it must be subjected to a field test. Each item should be assessed for clarity, aesthetics, relevancy, tone, length of time needed for a response, and, above all, cultural competence. The instrument developer having received qualitative and quantitative data on the initial instrument must then refine or discard problematic items and analyse the quantitative (Likert-form) data for content-related validity (item validity), criterion-related validity (concurrent validity, predictive validity), and construct-related validity (structural validity, convergent validity, discriminant validity, divergent validity) of the scale.

In this study the instrument was initially given to 8 participants who took part in the pre-test. The tool had both open ended and Likert-scale items. The data was analysed and presented to the supervisor. The instrument was redesigned to include other health care services initially not included in the initial tool and used in the field where 197 questionnaires were administered. The data was analysed using SPSS (23) and Cronbach`s Alpha coefficient was determined to be 0.785.
Validation of the instrument: Onwuegbuzie et al (2010:67) explained that this phase involves conducting a qualitative and quantitative crossover analysis. In this study this was achieved through the data integration process. The revised tool was the pre-tested again and given to 17 participants who were involved in the ART program. The data was analysed using SPSS (23) Cronbach’s Alpha coefficient was 0.768. Expert opinions including that of a statistician were sought and the tool was found to be relevant for evaluation of the ART program.

Once the researcher has completed the development of the IDVC, Onwuegbuzie et al (2010:61) explained that it is important that debriefing occurs, in which the researcher is interviewed by an individual who is not involved directly in the study but who understands the research construct or topic that is being studied. This process is understood to help the researcher to evaluate the decisions made at the various stages of the research process, reflect on assumptions, biases, feelings, and perceptions that were present at the beginning of the study and that evolved as the study progressed. In this study the researcher held debriefing session with a peer qualified at a PHD level. The researcher was able to reflect on the process used, give a description of the process followed and explain the data collection methods used. The reflection process involved an evaluation of the processes followed in the conduct of the study. Information from the debriefing sessions was used to reorganize questions on the suggested tool by removal of sections where participants could write other comments as they were only used by a small percentage of participants.

Below is the description of the suggested tool for the ART program.

Name: Self-assessment by registered nurses/midwives/nurse clinicians on the ART programme in Lesotho.

Purpose: To evaluate the antiretroviral therapy program in the primary health care (PHC) setting in Lesotho.

Target group: Registered nurses, midwives and nurse clinicians

Components of the tool: The tool has two sections. Section A addresses demographics characteristics of the participants and staffing patterns at PHC facilities. Section B addresses services offered, patient inflow and characteristics and processes of the ART programme at PHC facilities.

Process of the tool: The tool is intended for use in the evaluation of the ART program at PHC facilities on a regular basis.
*Recipients of the tool:* The tool is intended for use by the District Health management Teams and the Ministry of Health to assess effectiveness and efficiency of implementation processes of the ART program.

*Context in which the tool is to be used:* the tool is to be used at PHC facilities offering ART services including health centre facilities and outpatient departments of district hospitals. PHC facilities have been found to serve majority of HIV positive individuals and allow better access to health services.

*Facilitator of the tool:* the tool shall be administered by nurse managers and administrators of PHC facilities.

*Evaluation of the tool:* the tool shall be evaluated at least once every two years to ascertain appropriateness of concepts on the tool.

Shown below is the suggested tool for evaluation of the ART programme
SELF-ASSESSMENT BY REGISTERED NURSES/MIDWIVES/NURSE CLINICIANS ON ART PROGRAM IN LESOTHO

CODE

Purpose: To evaluate the antiretroviral therapy program in the primary health care (PHC) setting in Lesotho.

Instructions: The information provided will remain anonymous and confidential. In this study ART includes PMTCT. This questionnaire is to be completed by registered nurses/midwives/nurse clinicians and submitted to the District Health management Team (DHMT) for review.

Facility Name

Section A

1 The following section elicits biographical data. Please tick (√) or mark with (X) and provide as a number.

<table>
<thead>
<tr>
<th>AGE IN YEARS</th>
<th>OCCUPATION</th>
<th>Registered nurse</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>Registered nurse midwife</td>
<td>2</td>
</tr>
<tr>
<td>Married</td>
<td>2</td>
<td>Nurse clinician</td>
<td>3</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>Other (specify)</td>
<td>4</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>GENDER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. OF YEARS AT FACILITY</th>
<th>NO. OF YEARS IN CLINICAL PRACTICE</th>
</tr>
</thead>
</table>

2 The following section elicits information about the health facility. Please tick (√) or mark with (X).

<table>
<thead>
<tr>
<th>FACILITY OWNERSHIP</th>
<th>TYPE OF FACILITY</th>
<th>HEALTH centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Church</td>
<td>2</td>
<td>Filter clinic</td>
</tr>
<tr>
<td>Private</td>
<td>3</td>
<td>District hospital</td>
</tr>
<tr>
<td>Municipality</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
3 Indicate in numbers the staffing of your health facility.

<table>
<thead>
<tr>
<th>Medical doctors</th>
<th>Nurse clinician</th>
<th>Registered nurse</th>
<th>Registered nurse midwife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse assistant</td>
<td>Ward Aid</td>
<td>Lay counsellor</td>
<td>Professional counsellor</td>
</tr>
<tr>
<td>Data collector</td>
<td>Cleaner</td>
<td>Gardener</td>
<td>Security Guard</td>
</tr>
</tbody>
</table>

**Section B**

1 Indicate services offered at your facility. Please tick (√) or mark with (X).

<table>
<thead>
<tr>
<th>Screening</th>
<th>PMTCT</th>
<th>ART Initiation</th>
<th>ART Continuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact tracing</td>
<td>Electrolytes</td>
<td>Urea</td>
<td>Outreach services</td>
</tr>
<tr>
<td>Referral and follow up</td>
<td>FBC</td>
<td>HB</td>
<td>Consultation</td>
</tr>
<tr>
<td>FP</td>
<td>TB continuation</td>
<td>TB initiation</td>
<td>case finding</td>
</tr>
<tr>
<td>Creatinine clearance</td>
<td>CD4+</td>
<td>Liver function</td>
<td>VCT</td>
</tr>
<tr>
<td>Village teaching</td>
<td>Primary school teaching</td>
<td>Secondary school teaching</td>
<td>Under 5 clinic</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 Indicate in numbers the average number of patients seen for ART (including PMTCT) services per week at your facility.

For the questions that follow, Please tick (√) or mark with (X)

3 On how many days a week are ART services offered at your facility?

<table>
<thead>
<tr>
<th>1 day</th>
<th>2 days</th>
<th>3 days</th>
<th>4 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>&gt;5 days</td>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>

4 On how many days a week are PMTCT services offered at your facility?

<table>
<thead>
<tr>
<th>1 day</th>
<th>2 days</th>
<th>3 days</th>
<th>4 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>&gt; 5 days</td>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>
5. What is the average total time spent by an individual who visits your facility for ART (including PMTCT) services?

<table>
<thead>
<tr>
<th></th>
<th>30 mins</th>
<th>1 hour</th>
<th>2 hours</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 hours</td>
<td>&gt; 4 hours</td>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>

6. How long does it take for an individual seeking ART (including PMTCT) services to consult a nurse?

<table>
<thead>
<tr>
<th></th>
<th>30 mins</th>
<th>1 hour</th>
<th>2 hours</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 hours</td>
<td>&gt; 4 hours</td>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>

7. ARVs are always available at your facility.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Drugs to manage other health conditions are always available at your facility.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. The health facility has adequate staff to provide ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Staff at the health facility are qualified and competent to provide ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. The health facility has adequate resources / equipment for the delivery of ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12 The organisational structure at the facility allows for the provision of adequate and efficient ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13 ART (including PMTCT) services offered at facility are always routinely, accurately and efficiently delivered to allow accessibility.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14 Time spent at the facility allows patients to receive all ART (including PMTCT) services required.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15 Documentary evidence for ART (including PMTCT) at the facility is adequate and accurate.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16 Patients receiving ART at the facility are generally satisfied with ART (including PMTCT) services offered.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17 You are generally satisfied with your job and the ART (including PMTCT) services being offered.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18 There is a monitoring and evaluation system that is used to inform ART program. If available, briefly describe this system.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What challenges are you currently facing in the provision of ART (including PMTCT) services?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>What suggestions can you make to improve the provision of ART (including PMTCT) services?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.6 CONCLUSION

This chapter presented the research results and gave a description of the data analysis methods used in the study. It presented the quantitative and qualitative research results separately. Both sets of data were then merged to give an overall description of the results of the study. Information on how the suggested data collection was developed was also presented in this chapter.
CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The focus of this chapter presents a discussion of the research findings, conclusions, conceptual framework, recommendations, contributions and limitations of the study. This study attempted to answer the following questions:

- To what extent do quantitative and qualitative results converge in the evaluation of ART program in the primary health care setting of Lesotho?

It was supported by two pertinent questions which are:

- What is the ART program in the Primary Health Care setting of Lesotho?
- What are the experiences and views of both registered nurse midwives/clinicians and HIV positive patients on the ART program in the primary health care setting of Lesotho?

5.2 RESEARCH DESIGN AND METHOD

This study conducted process evaluation research which is defined by Polit and Beck (2012:726) as research which assesses how well a program, practice or policy is working. Mixed methods research using the convergent parallel research design, described by Creswell and Plano-Clark (2011:5) as ‘methods of inquiry involving philosophical assumptions that guide the direction of the collection and analysis and the mixture of qualitative and quantitative data in a single study or series of studies’ was used to address pertinent questions of this study.
5.3 SUMMARY AND INTERPRETATION OF RESEARCH FINDINGS

5.3.1 Sample characteristics

For the quantitative strand of the study, the age range was 39 with a minimum of 23 and a maximum of 62 years. The mean age of the participants was 36 years (CI=34.8-38.3) and the standard deviation was 9.8. Seven percent (n=14) of the participants were males and 92% (n=181) of the participants were females. The mean number of years spent at the facility was 4.6 years (CI=3.5-4.9) and the standard deviation was 4.7. The range was 29 with a minimum of less than 1 year and the maximum 29 years. The mean years spent in clinical practice was 9.7 (CI=8.5-11.4) years and the standard deviation was 8. The minimum number of years was less than one year and the maximum number was 33 years. For the qualitative strand of the study, sample 1 was comprised of two (2) nurse clinicians and three (3) registered nurse midwives of which one respondent was male and four of the participants were female whilst sample 2 had three (3) registered nurses who were all female. Their age range was 35 with the youngest nurse being 27 years and the oldest was aged 62 years. Participants had been involved in the provision of ART services for between two to eleven years and the range was 9.

The South African Nursing Council (SANC) (2016) reported a total population of 136 854 registered nurses on their roll, an increase of 35% percent in the preceding 10 years. 5% of the registered nurse/midwives were aged less than 30 years, 19% aged 30-39 years, 27% aged 40-49 years, 31% aged 50-59 years, 15% aged 60-69 years and 3% were aged above 69 years (SANC 2016). SANC (2016) further reported a registered-nurse patient ratio of 1:402.

Sample 3 comprised of seven (7) participants of which two (2) were males and five (5) were females. Sample 4 comprised of four (4) participants of which two (2) were males and two (2) were females. Their age range was 23 with the youngest participant being 32 years old and the oldest was fifty five years old. Participants had started taking ARVs from as early as 2005 and the most recent had started taking ARVs in 2015. As reported by the MoH and ICF International (2014: 235-237) HIV prevalence of 25% is amongst the age group of 15-49 and it initially increased with age and then declined.
5.3.2 Health centre facilities

Primary health care (PHC) is reported to play a vital role in the decentralisation of health care services, is driven by a philosophy that emphasises a radical change in both the design and content of conventional health services and advocates an approach to health care principles that allows people to receive economically and productive health care (Obioha & Molale 2011:73-88). In this study data was collected from 40% (n=64) of the total number of primary health care facilities found across six districts of Lesotho. Facilities were either health centre facilities or district hospitals. In Lesotho primary health care services are primarily offered in health centre facilities and outpatients departments of district hospitals ensuring health coverage at the community level. According to the Health Planning and Statistic Department of the Ministry of Health (2013), the health care system of Lesotho is manned by a total of twenty one hospitals, four primary hospitals, and two hundred and seven health centre facilities and four filter clinics and all are distributed disproportionately across the country and owned by various stakeholders. Minimal fees of M15.00 are paid at health centre facilities in urban and peri-urban areas whilst services are offered for free in rural areas.

5.3.3 Staffing

Majority of the PHC facilities were seen to be staffed by registered nurse midwives (72%; n=142) and nurse clinicians (19%; n=37). Lesotho is one of the few countries that permitted initiation of ART by registered nurses owing to the scarcity of Medical Doctors, a move that has seen an increase of the coverage of ART. Nurses have been seen to bring implementation success in HIV programs such as prevention of mother to child transmission; however, literature still remains limited on how the services offered by nurses have actually contributed to the propagation of ART. The World Health Organization actually made recommendations for task shifting HIV care to nurses in resource limited settings and it is yet to be established what the actual effect of task shifting is on the quality of life of people with HIV (Monti et al 2015:308).

However, Green et al (2014:[9]) suggested use of a nurse-mentor driven mentorship program to enable competent nurse initiation of the majority of patients, enabling doctors to manage complex cases and it also allowed nurses to improve their
confidence in performing HIV related clinical tasks. Yibeital et al (2012:24) also explained that ART delivery based on health officers and nurses was feasible, effective and acceptable although limited human resource was reported to be one of the major constraints to achieving universal ART coverage. Mack et al (2015:[1]) in their study reported human resource challenges which included increased workload, insufficient personnel, the need for task shifting/sharing, training needs, infrastructural requirements, discrimination and stigma by staff towards at risk clients and providers personal priorities in offering services were drivers of treatment interruption amongst patients. In South Africa a new initiative would see the adherence counsellor, home based carer and TB treatment supporter rolled into one as a community care worker employed and managed by non-governmental organizations for public sector facilities (Bekker et al 2014: 110).

5.3.4 Number of patients seeking ART services

In this study there was a large variation in the number of ART patients seen at facilities across the districts. Quantitative results showed an average number of 173 patients seen at facilities whilst qualitative results revealed a theme of staffing adequacy which had one category of inadequate human resource and sub-categories of large population being served. Both sets of results showed that there generally were a large number of patients that sought ART services at PHC facilities.

According to the UNAIDS global report on AIDS (2012), Lesotho had the third highest HIV prevalence in the world (23%) with approximately 26 000 new HIV infections and 14 000 AIDS related deaths in 2011 alone (UNAIDS 2012). Currently the country has the highest prevalence of 25% and incidence is 1.9 new infections per 100 person years of exposure (MoH, Lesotho & ICF International 2014:235). This therefore explains the large number of patients seeking ART services at PHC facilities in Lesotho. In South Africa ART had a slow start largely due to political prevarication in the midst of AIDS denialism, however there has been unprecedented expansion of the program since 2008 (Bekker et al 2014: 105). Seventy nine percent of treatment coverage was reached in 2012 and the number of adults starting ART in 2010/2011 was 1.56 times the number of adults who became ART eligible in 2010/2011, with women having a higher ratio than men (Bekker et al 2014: 109).
5.3.5 Number of days ART and PMTCT services were offered

In this study great variation was also noted in the number of days ART and PMTCT services were offered across the facilities. In quantitative results more than 50% of the participants reported that services were offered for at least five (5) days and when necessary although PMTCT was offered on designated days. Qualitative results showed in the theme of ART service delivery a category of weekly services meaning they were offered on a weekly basis. It can therefore be concluded that both sets of results revealed that ART and PMTCT services were offered on a weekly basis at PHC settings although there was variation in the actual number of days the services were provided.

This finding is in line with variations in the implementation of the ART programme in South Africa due to poorly located, inadequate and under maintained infrastructure, failure of the public health system to meet demand and sustain quality, uneven and often poor-quality public services, poor human resource allocation, queue times, cleanliness and staff attitudes (Bekker et al 2014: 110). Suggestions to improve accessibility to ART include decentralization of services although this is also a challenge due to unavailability of some services at PHC facilities which are still manned at central levels.

5.3.6 Average time spent seeking ART and consulting a nurse

Quantitative results showed that majority of the participants reported that it took 30 minutes to an hour to provide ART services. Participants did, however, allude to shortages of staff as a challenge that affected time spent by patients at facilities. Qualitative results yielded a theme of ART service delivery, a category of duration of ART services which had sub-categories of; depends on conditions of service provider, depends on availability of basic utilities and depends on the number of patients. It can be concluded that there was variation in the time patients spent seeking ART services or consulting nurses as shown in either quantitative or qualitative results.

This finding was in line with findings by Patel et al (2012:[4]) who reported that patients had to wait for long periods before accessing ART services, were getting tired and fed up of having to climb stairs to reach the ART centre upstairs and not having enough
seating space. Emenyonu and Green (2012:118) identified three main barriers to HIV care in resource limited settings to be stigma, financial constraints, and inflexible clinic schedules and that improvement should therefore target all three components of these barriers.

5.3.7 Availability of ARVs and other drugs

Quantitative results showed that majority of the participants strongly agreed (66%) or agreed (27%) that ARVs and other drugs were available at their facilities even though they cited the stock outs of drugs as a challenge that they experienced sometimes. Qualitative results yielded a theme of medication availability with a category of sometimes unavailable and sub-categories of low stock and replacement of unavailable drugs. It can be concluded that the results showed that ARVs and other drugs were usually available although in some cases they were not and the nurses had to make alternative decisions to ensure patients received the medication.

In South Africa 2.5 million people were receiving ART in 2013 and 90% of them received ART services through primary health clinics (Bekker et al 2014: 108). Adult treatment guidelines which are largely driven by cost offer a first line non-nucleoside reverse transcriptase inhibitor based regimen with a protease based second line whilst paediatric treatments have always been limited (Bekker et al 2014: 108). Tabatabai et al (2014:[1]) reiterated that an understanding of treatment interruption could inform strategies for improving drug adherence and retention in care. The authors further explained that transport costs and health care provider related reasons which included perceived or enacted discrimination by health care workers as resulting in interruption of their treatment (Tabatabai et al (2014:[1]). ARV stock outs have various negative consequences including treatment interruption which leads to treatment failure and possible acquired resistance requiring a therapy switch to more costly and less tolerable second line treatment (Bekker et al 2014: 109). Low stock supplies have also been reported to result in patients being asked to return more frequently which is costly to the patients and can affect levels of adherence and brings additional burden on health care staff (Bekker et al 2014: 109). It has therefore been suggested to dispense ARVs for three to four months to adherent patients as this has the potential to reduce lost work
time and reduce the burden on already overstretched dispensing systems (Bekker et al 2014: 109).

5.3.8 Staff adequacy

Quantitative results showed that majority of the participants disagreed (19%) or strongly disagreed (28%) that they were adequately staffed. Participants further stated the challenge that they were not adequately staffed at their facilities as they served too many patients. Qualitative results yielded a theme of staffing adequacy with a category of inadequate human resource and sub-categories of inadequate services, large population being served and work overload. It can therefore be concluded that staffing was generally unsatisfactory resulting in the provision of inadequate services and work overload as many patients were being served.

This finding is consistent with a finding by Mark et al (2015:[1]) who reported various human resource challenges and they included increased workload, insufficient personnel, the need for task shifting/sharing, training needs, infrastructural requirements, discrimination and stigma by staff towards at risk clients. Furthermore, Uys and Klopper (2013:[2]) recommended that at least 1 specialist nurse, 5 registered nurse midwives and 4 enrolled nurses were needed for effective running of PHC settings. In South Africa in keeping up with the nurse led-doctor supported ART programme the number of nurses certified to initiate ARV treatment increased from 250 in 2010 to 10 000 in 2012 with task shifting of other programmatic activities such as HIV testing and adherence counseling to community care workers (Bekker et al 2014: 110).

5.3.9 Staff qualified and competent

Quantitative results showed that majority of participants strongly agreed (58%) and agreed (31%) that staff was qualified and competent to provide ART services. Participants did, however, state they needed more training on the provision of ART services as supportive supervision was minimal. Qualitative results showed a theme of confidence and competence of ART service providers with categories of confident, knowledgeable, competent and refresher courses necessary emerging from data analysis. It can therefore be concluded that both sets of participants felt that staff providing ART services was qualified, confident, knowledgeable and competent in the
execution of their duties although they needed more training or refresher courses and supportive supervision.

In a study by Labhardt et al (2013:1) crude retention on HIV care was higher in patients who started ART initiated by nurses in rural Lesotho as patients were given follow up care. Yibbeltal et al (2012:27-28) also reported the use of mid- and low-level cadres as substitutes for physicians to improve access to and sustainability of health services in rural and peri-urban communities in Ethiopia. Patients enrolled in nurse-led ART were seen to achieve substantial improvements in immune function over a short period of time and more attention should therefore be given to preventing the development of opportunistic infections in patients managed in PHC settings (Schexnayder & Baernholdt 2014:1). However the need for supervision remains a challenge in resource limited settings including Lesotho in which participants expressed the need for regular training on ART.

5.3.10 Adequacy of resources and equipment to provide ART services

Quantitative results showed that majority of the participants strongly agreed (28%) and agreed (42%) that resources and equipment were adequate to allow for the provision of efficient ART services. Participants did, however, state lack of equipment to monitor the progress of patients on ART as one of the challenges in the provision of ART services. Qualitative results showed a theme of ART service delivery with a category of inadequate services which had sub-categories of dysfunctional equipment, lack of ART registers, wrong clinical monitoring of patients and use of other service providers. It can be concluded that even though there were resources and equipment for the provision of ART services there is room to improve on supplies and equipment to ensure continued clinical monitoring of patient on ART.

According to Rossi and Freeman (1993:188-191) in Babbie and Mouton (2002:347), provided reasons for program failure in delivery of services, namely no treatment or not enough treatment, the wrong treatment delivered and the treatment is uncontrolled or varies across target populations. Non-Treatment refers to the fact that the program or some components of the program do not reach the intended beneficiaries either due to poor services delivery, withdrawal of the target groups or dilution of the treatment when in short supply (Babbie & Mouton 2002:347. Wrong treatment could occur when the
way in which the intervention is delivered negates the treatment or the intervention requires a delivery system that is too complicated (Babbie and Mouton 2002: 347). Uncontrolled treatment implementation arises when there is too much discretion especially in multi-site interventions (Babbie & Mouton 2002:347). Poorly located, inadequate and under-maintained infrastructure has been described as an impediment to attainment of development goals in South Africa and it is necessary to make significant investments in health infrastructure (Bekker et al 2014: 110). Several challenges have been reported in the implementation of new devices to monitor virological levels in patients including the high cost of the devices (Roberts et al 2012: [3]). Belec and Bonn (2011: [1]) reiterated that laboratory monitoring of HIV in resource limited settings has now become one of the key challenges for ART access and success as it remains a centralized marker carried out in a limited number of reference laboratories.

5.3.11 Adequate and efficient ART services

Quantitative results showed that some of the participants strongly agreed (35%) and agreed (30%) that the ART services they were offering adequate and efficient. Qualitative results yielded a theme of ART services delivery with a category of inefficient ART services which had sub-categories of lack of knowledge, untoward effects of incentives, too many partners and poor remuneration. It can be concluded that even though ART services were being offered they were not adequate and efficient due to some challenges in their delivery as seen in the lack of knowledge of some patients, use of incentives by some partners and too many partners being involved in ART.

Matsubayashi et al (2011:[10]) in their study concluded that HIV specific programs when deliberately planned to improve broader health areas, could actually help to strengthen primary health services more broadly. Mitchel and Matlakala (2012:40-41) presented five broad areas of challenges namely; challenges related to sustainability, challenges related to adherence, challenges related to health systems, challenges related to stigma and challenges related to behaviour and the surge of whoonga and the infiltration of ART roll-out by crime and violence. Many other studies have reported challenges to include human resource shortages, too few patients receiving ART, too many patients starting treatment late, lack of equipment and poor clinical monitoring of patients (Mutevedzi & Newell 2014:[2]).
5.3.12 Services routine, accurate and efficient to allow accessibility

Quantitative results show that majority of the participants strongly agreed (48%) and agreed (42%) that the ART services were offered routinely allowing patients adequate access. Participants did, however, state a challenge that the ART services were not adequate and more could be done to improve the services. Qualitative results yielded a theme of ART service delivery with a category of variety of services and sub-categories of accessible and another which specified the different services that were being offered. The two data sets are congruent as it could be delineated that the ART services were offered routinely and participants were able to cite some of the services offered, although more could be done to improve the services.

This finding is in line with results from a study by Emenyonu and Green (2012:118) who explained the importance of strengthening health care systems and building local leadership to maintain the foundation for sustained success. In South Africa, like many other sub-Saharan countries, monitoring of access to ART remains a challenge due to weak health information system, limited infrastructure and diverse service providers with differing reporting requirements (Bekker et al 2014: 111). It is important that the future continues to strengthen health care systems, provide for innovative systems improvement and decentralized approaches to scale up services as ART grows back to individual treatment (Bekker et al 2014: 112). The authors further explained the benefits of decentralized ART to be improved retention rates amongst both adults and children compared with centralized hospital services and enabling better coverage of services (Bekker et al 2104: 112). In Lesotho ART services are being offered concurrently with other PHC services in the `supermarket approach`.

5.3.13 Time allows patients to receive all ART services

Quantitative results showed that majority of the participants strongly agreed (57%) and agreed (34%) that time spent at the facilities allowed patients to receive all ART services. Participants did, however, state shortage of staff and too many patients as challenges that also affected the time that ART patients spent at the facilities. Qualitative results yielded a theme of ART service delivery and a category of duration of
ART service delivery with sub-categories of depends on conditions of service provider, depends on availability of basic utilities and depends on the number of patients. It can therefore be concluded that patients did receive all the ART services required (quantitative) although the duration of time spent at facilities was depended on various factors (qualitative).

Matsubayashi et al (2011:[1]) explained that there was no evidence that providing HIV services together with non-ART services had any deleterious effects on health services at the health centre facilities studied. The authors further cited positive effects not only on HIV/AIDS services but on other essential services including TB services, paediatric care, immunisation and Malaria services (Matsubayashi et al 2011:[10]). However Odeny et al (2013: [1]) explained that whilst benefits of integration can trickle down to patients, it is possible that the reorganization of health care delivery can disrupt service provision and potentially cause dissatisfaction amongst patients and therefore may not always result in better patient and service outcomes. Currently, as stated by participants, a ‘supermarket approach’, in which ART services are provided concurrently with other services, is being employed in the provision of ART services resulting in different amounts of time being spent at the facilities owing to the individual needs of ART patients.

5.3.14 Documentary evidence is adequate and accurate

Quantitative results showed that majority of the participants strongly agreed (31%) and agreed (45%) that documentary evidence was adequate and accurate at their facilities. Participants did, however, cite the lack of equipment as a challenge they regularly experienced. Qualitative results yielded a theme of ART service delivery with a category of inadequate services which has a sub-category of lack of ART registers. It can therefore be concluded that although documentary evidence was available it was not accurate owing to a lack of equipment, being the registers in which to document.

Babbie and Mouton (2002:347) reported on records (including all forms of service documentation) as sources of data in implementation evaluation studies and they included attendance and enrolment logs, logbooks, in-house memos, flyers and promotional brochures, legal documents, transcripts and minutes of meetings and activity rosters. This is in line with results from a study by Tabatabai et al (2014: [6])
which reported that health care provider related conditions such as loss of health passport and missing transfer letters as reasons for delayed return to care. In Lesotho anecdotal evidence points to several challenges in the propagation of the ART program including insufficient human resources who are virtually overworked, inefficient implementation of the program, lack of equipment (including paper documents) and inadequate antiretroviral therapy drug supplies. Mack et al (2015:[1]) in their study reported human resource challenges which included increased workload, insufficient personnel, the need for task shifting/sharing, training needs, infrastructural requirements, discrimination and stigma by staff towards at risk clients and providers personal priorities in offering services as drivers of inadequate implementation of the ART program.

5.3.15 Patients satisfied with ART services

Quantitative results showed that majority of the participants strongly agreed (32%) and agreed (46%) that patients were satisfied with ART services even though it could not be ascertained whether they actually did ask the patients. Qualitative results yielded a theme of satisfaction with ART services with a category of partially satisfied which had sub-categories of drugs evoke hunger and stigmatisation. It can be concluded that even though patients seemed to be satisfied with ART services they also felt that there was still stigma pertaining to their HIV status and the ARVs themselves made them feel hungry.

ARVs have been reported to be life-saving and have resulted in an increased life expectancy for those infected. Patel et al (2012:[4]) concluded that both patients and providers found beneficial effects of ART to be improved health. Odeny et al (2013: [6]) reported that integrating HIV care with other PHC services did not affect individual patients and actually offered benefits that extended beyond the health system level to a broader patient population without diminishing patients’ perceived satisfaction. However, Tabatabai et al (2014:[6]) reported on health care provider related conditions of perceived or enacted discriminatory behaviour as the explanation of delayed return to care and patient self-reported health conditions including adverse effects, sickness/weakness, pregnancy and treatment fatigue as drivers of treatment interruption.
5.3.16 Job satisfaction

Quantitative results showed that majority of the participants strongly agreed (34%) and agreed (44%) that they were satisfied with their jobs. Participants, however, stated challenges of providing inadequate ART services. Qualitative results yielded a theme of satisfaction with ART services with a category of partially satisfied and sub-categories of dysfunctional equipment and deaths due to cervical cancer. It can therefore be concluded that even though staff was satisfied with their jobs they provided inadequate services due to dysfunctional equipment and some patients had been lost due to inability to screen for cancer.

Studies on the satisfaction of nurses regarding their jobs remain limited in Lesotho. Nurse-driven of ART services have in recent years been introduced in resource limited settings to scale-up the provision of ART. Yibbeltal et al (2012:24) also concluded that issues relating to regulation, remuneration and cost had to be addressed to ensure sustainable implementation of nurse driven models of care. Brain drain continues to be another challenge that has not been addressed adequately with many nurses moving to first world countries and from rural areas to urban areas due to low salaries and poor working and living conditions (Vermund et al 2015: [2]).

5.3.17 Monitoring and evaluation system available

Monitoring and evaluation is vital to the successful implementation of any public health program as it enables identification of successes and challenges and the development of improvement strategies. Quantitative results showed that majority of the participants strongly agreed (25%) and agreed (36%) that monitoring and evaluating system was available at their facilities. Participants did, however, state lack of supportive supervision as a challenge in maintaining continuous monitoring and evaluation. Qualitative results yielded a theme of monitoring and evaluation with a category of incomplete. The results show that even though there was monitoring and evaluation of the ART program it was incomplete as there was lack of supportive supervision.

Uebel et al (2013:[1, 10])) concluded that `local clinic factors and nurse and patient preferences must be taken into account in programs to integrate HIV care into primary care services’. The authors further explained the need to include medical records,
monitoring and reporting systems to support clinic based efforts to integrate HIV care into primary care services (Uebel et al 2013:[1, 10]). Mahasele (2011:[2]) reported that facilities, districts and provinces in South Africa were at different levels of implementation of ART program and uniform data collection could not be achieved due to human resource constraints and the use of manual reporting systems. There was also lack of awareness regarding the monitoring and evaluation documents amongst health care staff (Mahasele 2011:[2]). In Lesotho studies relating monitoring and evaluation of the ART program still remain limited with the Lesotho Demographic and Health survey being the main source of health data and it is conducted every five years.

5.4 CONCLUSIONS

Antiretroviral therapy is one of the greatest successes of drug developments that resulted in increased life expectancy amongst HIV positive individuals around the world. ART has resulted in the conversion of HIV disease from an incurable deadly disease to one that is managed chronically. In sub-Saharan Africa the ART has not only improved the health status of individuals infected but has greatly reduced the burden of the disease by improving lifestyles and reducing the morbidity and mortality impact on families, society and governments.

With its health care system mainly manned by PHC facilities, which are disproportionately distributed across the country, Lesotho has achieved greater strides in coverage of health services through a shift from a doctor-led to nurse-led ART. As shown in this study, PHC facilities are mostly run by nurses who were found to be competent in the provision of ART services. Further provision of ART by nurses has resulted in reduced amounts of time spent by patients at facilities. It is therefore acknowledged that nurses play a pivotal role in the health care system of Lesotho and need as much support for their efforts to be translated to improved health status for the whole nation through supportive supervision and in-service training. However, it was revealed that the general staffing patterns were not uniform across the facilities and generally inadequate to allow the provision of services especially considering that other health care services besides ART were also being provided. Besides the training of many nurses in country, Lesotho like many other sub-Saharan countries also faces challenges of health care provider exportation to other countries that provide better salaries and working conditions.
ART services were found to be available to the many numbers infected by the disease and were offered routinely at least every week. Of note is that even though similar services were available at facilities, they were not offered on exactly the same days and in the exact same manner owing to differences in staffing patterns and health care provider preferences. Through the use of the supermarket approach, services were understood to be comprehensive and efficient enough allowing accessibility. However, participants raised challenges of inadequate resources and dysfunctional equipment especially for the continued monitoring of patients and this was found to be a major setback in the ART program. This has resulted patients having to move from one facility to another seeking services that could assist in monitoring their health progress. ARVs themselves were also reported to purport hunger, an allegation that certainly needs further investigation and understanding for it to be addressed.

Although ARVs and other drugs were generally available, some interruptions in drug supplies were reported, however, efforts were made to provide supplies to all patients to ensure that there no interruptions in their treatment. Work commitments were also found to be a major factor affecting continued monitoring of patients especially those working in neighbouring South Africa and of note is that patients were reluctant to be enrolled in ART under the South African health care system where they spent most of their time. Instead patients preferred sending a relative or any other treatment supporter to collect their medication and the health providers ensured that they did give supplies for as long as 3 months. However, the dilemma that ensued was on the lack of monitoring of the patients whether to continue providing the medication or to stop.

Given the current scenario in which the government of Lesotho has made great strides to provide the much needed ART at a free cost, participants in this study generally showed their acknowledgement of the services being provided as they felt it was better than nothing at all despite the many challenges being faced. However, it was noted that partners assisting the government must be monitored to avoid duplication of efforts and more education be instigated to prevent individuals infected testing more than once. Increased monitoring and evaluation activities need to be done to ensure that the ART program is propagated as envisaged.
5.5 CONCEPTUAL FRAMEWORK INTEGRATION

This section provides an integration of the conceptual framework into the discussion of the results. The aim is to show the overarching relationship between the intervention wheel and the ART program in this study.
The ART program is the central core of the framework and it is offered with either an individual, community or population focus and is also system based. Directly linked to the ART program are activities that can be done during its propagation including surveillance, screening, case finding, case management, consultation, referral and follow-up, health teaching, counselling, outreach, collaboration, coalition, community organising and disease and health investigations. However, the implementation of these activities is seen to be affected by other factors from the health system as a whole. As
shown in figure 4.28 the propagation of the ART program is influenced by several factors identified by this study including:

- Staff adequacy
- Qualification, competency, knowledge of staff
- Job satisfaction
- Adequacy of resources and equipment
- Routine, accurate and efficient ART services
- Patient satisfaction
- Time taken in the provision of services
- Documentation of activities
- Availability of ARVs and other medications
- Number of ART and PMTCT patients
- Monitoring and evaluation

The factors themselves are seen to be interrelated and failure at one can result in poor propagation of the ART program.

This conclusion is in line with a framework for social programs suggested by Babbie and Mouton (2002:343) as shown below.
The conceptual framework by Babbie and Mouton (2002:342-345) shows that there is a relationship between the program goals (I) and the target group (II) as a program is designed to address the needs of the target group. The goals (I) of the program must be operationalised into measurable outcomes (III). Goals of the ART programme include improving lifestyles of HIV positive individuals and reducing the burden of the disease locally, regionally and internationally. Measurable outcomes include increased life expectancy of HIV positive individuals and reduced disease mortality and morbidity. Program components (IV) are the actual mechanisms and means the implementation leads to the attainment of the stated objectives. Programme components include processes involved in the implementation of the ART programme that are individual
focused, community focused or population focused. Such processes involve availability of resources and equipment and availability of ARVS and other drugs, surveillance, disease investigations, screening, referral and follow up, case management, health teaching, counselling, consultation, collaboration, coalition building, community organizing, advocacy and policy development and enforcement. The program management system (V) comprises all the systems required to implement and manage a program including administrative (records and filing), monitoring (keeping track of program participants) and information (financial). Programme management systems involve monitoring and evaluation processes of the ART programme and adequacy of documentation in the programme. The human resource base (VI) refers to individuals managing the program in light of their competencies in effective and efficient program management, organisational structures in large scale programs and personality styles suited to program management. The human resource base for the ART programme includes adequate staff who are satisfied with their jobs and qualified, competent and knowledgeable in the provision of ART services which are routine, accurate and efficient to ensure patient satisfaction. Stakeholders (VII) include founders or sponsors of a program, the general public and other competing service providers such as non-governmental organisations. Stakeholders of the ART programme include HIV positive individuals, communities and the population at large that are also affected by the disease. The context (VIII) includes the broader socio-political context, specific geographical location or setting and the time frame which determines the success of an intervention. The context refers to settings in which ART services are offered and they are the PHC facilities located at various sites within the country.

5.6 RECOMMENDATIONS

This section will be described according to practice, nursing education and research.

5.6.1 Practice

The following practice areas are recommended:

- On site supervision of the ART program by trained mentors must be instigated as a Ministry of Health standard to ensure support during the provision of services.
• Monitoring and evaluation of the ART program must be done quarterly and feedback given to health facilities for them to immediately adjust their service provision as required.

• Monitoring of partners involved in the propagation of the ART program to avoid duplication of efforts that have chances of resulting in double testing of HIV positive individuals.

• Lesotho Ministry of Health needs to work together with the Ministry of Health in South Africa in the provision of ART services to Basotho who work in South Africa to ensure that patients continue to receive the recommended services pertaining to ART. It is further recommended that the ART program needs to move from being paper based system to a more electronic system in which tracking of patients is done even if they are not in the facility or country from which they initiated their ART.

• Ministry of Health must implement maintenance of equipment from budgetary lines to avoid equipment that stops working never being able to be used again. Furthermore there must be back up equipment especially in light of laboratory machines to avoid patients being denied access to laboratory testing.

• The Ministry of Health and other facility owners must review staffing patterns at PHC facilities and have at least four registered nurses as the standard minimum.

5.6.2 Nursing education

The following nursing education areas are recommended:

• Exit level training of final year nursing students to update them on current practices in the ART program.

• Continued in-service training of nurses working in PHC settings to update them on new information of the ART program.

5.6.3 Research

The following research areas are recommended:
• Research on the use of electronic patient record to improve accessibility of services regardless of place of origin that could result in a more effective and efficient program not only in Lesotho but in Southern Africa.

• Research focusing on knowledge, attitudes and practices of both nurses and HIV positive patients regarding the ART program especially with regards to initial and follow up screening tests.

5.7 CONTRIBUTIONS OF THE STUDY

The study will benefit; policy makers to improve the processes involved in the antiretroviral program; Implementing partners currently assisting in the propagation of the ART program to be able to understand the actual impact their assistance has during the provision of services; Patients to be able to receive faster and more effective services; Health care workers, especially registered nurses, to be able to plan execution of the antiretroviral therapy program in their health clinics effectively. The ART evaluation tool developed in this study can be used to assess the ART program and inform planning at each health clinic in each district and eventually the nation as a whole. This study is therefore exploratory to potential subsequent studies that focus on implementation strategies such as the use of electronic patient record and accessibility of services regardless of place of origin that could result in a more effective and efficient ART program.

5.8 LIMITATIONS OF THE STUDY

This study was limited to evaluation of the ART program alone and did not seek to ascertain outcome impacts of the ART program. Furthermore the study did not consider implementation of other programs that were being provided in PHC facilities. The topography of Lesotho did not allow the researcher to reach some of the primary health care facilities in the mountainous areas.

5.9 CONCLUDING REMARKS

This study adds to the growing literature about the ART program in Lesotho. Even though ART is acknowledged to have improved the health of HIV positive individuals, there is need of continued monitoring and evaluation from the program inputs,
implementation processes, outcomes and impacts. This will enable timely reviews of the program to improve service delivery. The researcher hence developed a tool that can be used to evaluate the ART program in PHC settings of Lesotho. Hopefully this will assist in continued monitoring and evaluation processes of the program.
REFERENCES


Leech, L & Onwuegbuzie, AJ. 2010. Guidelines for conducting and reporting mixed research in the field of counseling and beyond. *Journal of Counseling and Development* 88: 61-70


MCC see Millennium Challenge Corporation.


MoH, Lesotho & ICF International see Ministry of Health see Ministry of Health, Lesotho & ICF International.


National University of Lesotho Geography Department. [s.a.]. Map of Lesotho Districts and Ecological Zones (accessed 3 September 2015).

National University of Lesotho Geography Department. [s.a.]. Map of Lesotho Health Facilities (accessed 3 September 2015).


SPSS see Statistical Package for Social Sciences

Statistical Package for Social Sciences. Version 23. Obtained from University of South Africa


UNAIDS see Joint United Nations Program on HIV/AIDS.

UNDP see United Nations Development Program.


WHO see World Health Organization.


INTERNET SOURCE

Appendix 1: Quantitative data collection tool

TOOL 1: SELF-ASSESSMENT BY REGISTERED NURSES/MIDWIVES/NURSE CLINICIANS ON ART PROGRAM IN LESOTHO

Purpose: To evaluate the antiretroviral therapy program in the primary health care (PHC) setting in Lesotho.

Instructions: This questionnaire is to be completed by registered nurses/midwives/nurse clinicians and submitted to the District Health Management Team (DHMT) for review. The information provided will remain anonymous and confidential. In this study ART includes PMTCT.

Facility Name

Section A

The following section elicits biographical data. Please tick (✓) or mark with (X) and provide as a number.

<table>
<thead>
<tr>
<th>AGE IN YEARS</th>
<th>OCCUPATION</th>
<th>Registered nurse</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARITAL STATUS</td>
<td>Single</td>
<td>Registered nurse midwife</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>Nurse clinician</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>Other (specify)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>Gender</td>
<td>Male</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. OF YEARS AT FACILITY</th>
<th>NO. OF YEARS IN CLINICAL PRACTICE</th>
<th>Gender</th>
<th>Male</th>
<th>1</th>
</tr>
</thead>
</table>
The following section elicits information about the health facility. Please tick (√) or mark with (X).

<table>
<thead>
<tr>
<th>FACILITY OWNERSHIP</th>
<th>TYPE OF FACILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Health centre</td>
</tr>
<tr>
<td>Church</td>
<td>Filter clinic</td>
</tr>
<tr>
<td>Private</td>
<td>District hospital</td>
</tr>
<tr>
<td>Municipality</td>
<td></td>
</tr>
</tbody>
</table>

Indicate in numbers the staffing of your health facility.

<table>
<thead>
<tr>
<th>Medical doctors</th>
<th>Nurse clinician</th>
<th>Registered nurse</th>
<th>Registered nurse midwife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse assistant</td>
<td>Ward Aid</td>
<td>Lay counsellor</td>
<td>Professional counsellor</td>
</tr>
<tr>
<td>Data collector</td>
<td>Cleaner</td>
<td>Gardener</td>
<td>Security Guard</td>
</tr>
</tbody>
</table>

Section B

1. Indicate services offered at your facility. Please tick (√) or mark with (X).

<table>
<thead>
<tr>
<th>Screening</th>
<th>PMTCT</th>
<th>ART Initiation</th>
<th>ART Continuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact tracing</td>
<td>Electrolytes</td>
<td>Urea</td>
<td>Outreach services</td>
</tr>
<tr>
<td>Referral and follow up</td>
<td>FBC</td>
<td>HB</td>
<td>Consultation</td>
</tr>
<tr>
<td>FP</td>
<td>TB initiation</td>
<td>TB initiation</td>
<td>case finding</td>
</tr>
<tr>
<td>Creatinine clearance</td>
<td>CD4+</td>
<td>Liver function</td>
<td>VCT</td>
</tr>
<tr>
<td>Village teaching</td>
<td>Primary school teaching</td>
<td>Secondary school teaching</td>
<td>Under 5 clinic</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Indicate in numbers the average number of patients seen for ART (including PMTCT) services per week.

For the questions that follow, Please tick (√) or mark with (X)

3. On how many days a week are ART services offered at your facility?

<table>
<thead>
<tr>
<th>1 day</th>
<th>2 days</th>
<th>3 days</th>
<th>4 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>&gt;5 days</td>
<td>no answer</td>
<td></td>
</tr>
</tbody>
</table>
4. On how many days a week are PMTCT services offered at your facility?

<table>
<thead>
<tr>
<th></th>
<th>1 day</th>
<th>2 days</th>
<th>3 days</th>
<th>4 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days</td>
<td>&gt; 5 days</td>
<td>no answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. What is the average time spent by an individual who visits your facility for ART (including PMTCT) services?

<table>
<thead>
<tr>
<th></th>
<th>30 mins</th>
<th>1 hour</th>
<th>2 hours</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours</td>
<td>&gt; 4 hours</td>
<td>no answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. How long does it take for an individual seeking ART (including PMTCT) services to consult a nurse?

<table>
<thead>
<tr>
<th></th>
<th>30 mins</th>
<th>1 hour</th>
<th>2 hours</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours</td>
<td>&gt; 4 hours</td>
<td>no answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. ARVs are always available at your facility.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Drugs to manage other health conditions are always available at your facility.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. The health facility has adequate staff to provide ART (including PMTCT) services.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Staff at the health facility are qualified and competent to provide ART (including PMTCT) services.

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11 The health facility has adequate resources / equipment for the delivery of ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12 The organisational structure at the facility allows for the provision of adequate and efficient ART (including PMTCT) services.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13 ART (including PMTCT) services offered at facility are always routinely, accurately and efficiently delivered to allow accessibility.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14 Time spent at the facility allows patients to receive all ART (including PMTCT) services required.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15 Documentary evidence for ART (including PMTCT) at the facility is adequate and accurate.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16 Patients receiving ART at the facility are generally satisfied with ART (including PMTCT) services offered.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17 You are generally satisfied with your job and the ART (including PMTCT) services being offered.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
18 There is a monitoring and evaluation system that is used to inform ART program. If available, briefly describe this system.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>No answer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19 What challenges are you currently facing in the provision of ART (including PMTCT) services?

20 What suggestions can you make to improve the provision of ART (including PMTCT) services?
Participant information

THE FOLLOWING QUESTIONS ARE ABOUT YOUR PERSONAL INFORMATION

<table>
<thead>
<tr>
<th>Participant’s code</th>
<th>Age</th>
<th>Sex</th>
<th>How long has it been since you started receiving antiretroviral therapy services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
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THE FOLLOWING QUESTIONS ARE ABOUT YOUR EXPERIENCES AND VIEWS REGARDING THE ANTIRETROVIRAL THERAPY PROGRAM

**GRAND TOUR QUESTION**
What are your experiences and views regarding the ART program in the Primary Health Care setting of Lesotho?

**FOLLOW UP QUESTIONS**
1) On what days of the week do you come to receive ART services?
2) Approximately how much time do you spend at the facility while seeking ART services?
3) State the ART services that are offered to you at the facility.
4) Are ARVs always available at the facility?
5) Are other drugs for other ailments always available at the facility?
6) Are you always able to go through routine tests that are necessary to monitor your antiretroviral therapy?
7) Do you think the staff at the facility is adequate to provide ART services?
8) Do you think staff at the facility is qualified and competent to provide ART services?
9) Are you generally satisfied with the way the ART services are being offered?
10) Are there any challenges that you face while seeking ART services?
11) Do you have any suggestions for improvement?
### Participant information

**THE FOLLOWING QUESTIONS ARE ABOUT YOUR PERSONAL INFORMATION**

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THE FOLLOWING QUESTIONS ARE ABOUT YOUR EXPERIENCES AND VIEWS REGARDING THE ANTIRETROVIRAL THERAPY PROGRAM

GRAND TOUR QUESTION
What are your experiences and views regarding the ART program in the Primary Health Care setting of Lesotho?

FOLLOW UP QUESTIONS
1) On how many days of the week are ART (including PMTCT) services offered at your facility?

2) Approximately how much time do patients seeking ART services spend at the facility?

3) State the ART services offered at your facility.

4) Are ARVS always available at the facility?

5) Are other drugs used for the management of other ailments always available at facility?

6) Are patients always able to go through routine tests that are necessary to monitor their antiretroviral therapy?

7) Is your facility adequately staffed to provide ART services efficiently?

8) Do you feel you are confident and competent to provide ART services effectively?

9) Are you satisfied with the ART services that you are currently providing?

10) Are there any other challenges that you are currently facing in the provision of ART services?

11) Do you have any suggestions for improvement of the ART program?
Appendix 3a: Informed consent form

QUANTITATIVE STRAND

My name is Isabel Nyangu, and I thank you for agreeing to participate in this study. The purpose of this study is to evaluate the antiretroviral therapy program in the primary health care setting. I have requested you to participate in this study because I believe that you can provide valuable information on this matter. I therefore urge you to answer the following questions to the best of your knowledge.

This study is important because it will assist us to get a better understanding of the processes involved in the implementation of antiretroviral therapy program and the impact they have on both the health care staff involved and the patients receiving care. The expected benefits include informing policy makers to improve the processes involved in the antiretroviral program, partners currently assisting in the propagation of the ART program to be able to understand the actual impact their assistance has during the provision of services and patients to be able to receive faster and more effective services.

There are no expected risks related to this study. However, you might experience some discomfort or doubt whilst completing the questionnaire. Please note that your participation in this study is entirely voluntary and you can withdraw from it at any time without repercussion or penalty. All information provided will be treated in strict confidence and none of the information can be linked to you as only codes will be used for identification.

This study and its procedures have been approved by the Research and Ethics Committee of the University of South Africa and the Research and Ethics Committee of the Ministry of Health in Lesotho.

If you agree to participate, you will complete a questionnaire requiring about 20 minutes of your time.

If you have any questions about the study or about participating in the study, please feel free to ask me now. If you have questions after completing the questionnaire, you can call me at +266 62017505.

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and stop taking part at any time without penalty. I understand the risks/benefits associated with this study and I was given an opportunity to ask questions.

I therefore freely consent to take part in this research project.

______________________________
Signature of participant          Date

I understand that the participant understands the nature of the study, as well as related risks and benefits

______________________________
Signature of Investigator          Date
Appendix 3b: Informed consent form

QUALITATIVE STRAND

My name is Isabel Nyangu, and I thank you for agreeing to participate in this study. The purpose of this study is to evaluate the antiretroviral therapy program in the primary health care setting. I have requested you to participate in this study because I believe that you can provide valuable information on this matter. I therefore urge you to answer the following questions to the best of your knowledge.

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The discussion will be recorded using a tape recorder and this is to ensure that the researcher captures what you say accurately. Because your name is not required, what you say will not be linked to you. All the information will be kept in a safe cupboard and will only be used for research.

This study and its procedures have been approved by the Research and Ethics Committee of the University of South Africa and the Research and Ethics Committee of the Ministry of Health in Lesotho.

If you agree to participate, you will be required to participate in a focus group discussion which will take approximately 1 hour 30 minutes.

If you have any questions about the study or about participating in the study, please feel free to ask me now. If you have questions after completing the questionnaire, you can call me at +266 62017505.

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and stop taking part at any time without penalty. I understand the risks/benefits associated with this study and I was given an opportunity to ask questions. I therefore freely consent to take part in this research project.

__________________________________________________________
Signature of participant                  Date

It is my opinion that the participant understands the nature of the study, as well as related risks and benefits

__________________________________________________________
Signature of Investigator               Date
Appendix 4: Confidentiality agreement

I ........................................................................................................ having agreed to participate in the study entitled “Evaluation of antiretroviral therapy program in the primary health care setting in Lesotho” hereby pledge not to divulge any information related to this study including other participants who took part in this study. I will apply the ethical principles of confidentiality on all information that I might know.

DATE .................................. SIGNATURE.............................................

DATE............................ RESEARCHER’S SIGNATURE............
Appendix 5: Transcripts of the focus group discussion with registered nurses

The interview was conducted in English and taped using a voice recorder.

Introduction

INT: My name is Isabel Nyangu, and I thank you for agreeing to participate in this study. The purpose of this study is to evaluate the antiretroviral therapy program in the primary health care setting. I have requested you to participate in this study because I believe that you can provide valuable information on this matter. I therefore urge you to answer the following questions to the best of your knowledge.

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The discussion will be recorded using a tape recorder and this is to ensure that the researcher captures what you say accurately. Because your name is not required, what you say will not be linked to you. All the information will be kept in a safe cupboard and will only be used for research.

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If you agree to participate, you will be required to participate in a focus group discussion which will take approximately 1 hour 30 minutes.

If you have any questions about the study or about participating in the study, please feel free to ask me now. If you have questions after completing the questionnaire, you can call me at +266 62017505.

Do you allow me to interview you?

PART: Yes Mme

INT: I am not going to mention your names at all for confidentiality purposes and I therefore kindly ask you to avoid mentioning individuals’ names as much as possible. I will kindly ask for your ages and how long has it been since you were involved in the provision of ART services.
### Demographic characteristics of registered nurse midwives/clinicians Sample 1 (n=5)

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Mean age ($\bar{x}$) = 39
Mean years ($\bar{x}$) = 6

### Sample 2: (n=3)

<table>
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<th>How long have you been involved in the provision of ART services</th>
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Mean age ($\bar{x}$) = 37
Mean years ($\bar{x}$) = 4

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**Question 1**

What are your experiences and views regarding the ART program in the Primary Health Care setting of Lesotho?

PART: It’s a hectic program. There are too many patients. But there set-backs as well. Hey ART is something else. But we are doing our best.

PART: It’s very busy

PART: Hectic, heavy, Busy. It keeps us on our toes

**Question 2**

INT: On how many days of the week are ART (including PMTCT) services offered at your facility?

PART: Major one is five days but even Saturday and Sunday like PMTCT we still provide services. But sometimes some come for refills and the like we still give them. Some deliver weekends we still give them. So you can say for 7 days of the week.

PART: Everyday

INT: What about on Saturdays?

PART: We can help.
INT: What about the pregnant patients. Can they come on weekends to deliver, can they receive ART services?
PART: PMTCT is given for the whole 7 days of the week since the women can come to deliver on weekends and if they have to be initiated immediately, they get the service.
INT: On average how many patients do you see for ART?
PART: Plus or minus 50
PART: The same

**Question 3**

INT: Approximately how much time do patients seeking ART services spend at the facility? Let’s say for usual ART refills?
PART: It depends on how many they are on that day. To generalise maybe it’s 2 hours.
INT: And if it’s a first time patient (initiating), how much time to they spend?
PART: First time, if the patient has tested, you mean those coming for initiation, maybe 20 minutes, even less (15-20) because we have to check if they understand well, and we have to fill the ART registers.
PART: If she has no problems I think 30 minutes
INT: What about Initiating?
PART: At least 45 minutes because we have to ask questions and sometimes you find that you end up taking a long time.
PART: It also depends on the condition of the patient and the person who is working with the patients.

**Question 4**

INT: Which ART services are offered at your facility, besides the giving of the drugs, what else are you doing in the ART program?
PART: Adherence counselling, family planning, laboratory monitoring, TB screening, treatment of other ailments.
INT: So are you taking the bloods yourselves?
PART: Yes
PART: Counselling, screening of TB and STIs
PART: Family planning
PART: Consultation
**Question 5**  
INT: Are ARVS always available at the facility?  
PART: Yes, always  
INT: There is never a time you go without drugs?  
PART: No, they are always there  
PART: So far we don’t have any problems  
INT: What about when you order, are there any problems?  
PART: No there are no problems

**Question 6**  
INT: Are other drugs used for the management of other ailments always available at facility? I mean for general OPD or you sometimes have stock outs?  
PART: We have stock-outs once in a while unless they have not given us at NDSO but otherwise they are available. Unless when we order they do not supply us, but we still ask from other clinics and hospital. Like now they did not give us some promethazine injection and syrups, we asked Scott to give. We sent someone there to collect. So we can say most of the time they are available.  
PART: Sometimes but not always  
PART: Sometimes we have stock outs  
INT: What happens if you have stock outs?  
PART: We replace the drugs with other drugs  
PART: Like panado we replace with other analgesics  
INT: What if there is nothing to replace with?  
PART: It never happens  
PART: There is nothing like that. You find that only one drug is not there and we replace it with another one.

**Question 7**  
INT: Are patients always able to go through routine laboratory tests that are necessary to monitor their antiretroviral therapy as planned?  
PART: As planned?  
INT: For example after 3 months they need to get liver function tests, kidney tests, are they done accordingly as per the needs of the patient?
PART: Sighs! We have a major problem at the lab, the CD4+ machine has been broken for more than a year now, but as for other lab tests, we still do them, but for CD4+ we have not been doing it.

INT: So what has been happening now that you were not able to check the CD4+

PART: For those who can afford to go to Mafeteng because we are serviced by the Lab there, they go there. But for others we just do clinical monitoring.

INT: So if the patient looks fine you just continue the treatment? Do you think our judgements are correct by just using clinical monitoring?

PART: Yes we just continue. But it is wrong. Sometimes the patient can look fine when the CD4+ count is gone. It is not correct but due to the circumstances that is all we can do.

PART: Yes we monitor their blood tests, except the CD4+ count because the machine is not working. But other tests are done.

PART: Except for patients who are working in South Africa. They usually send their relatives and we always ask them to ask the patients to come for routine tests and they usually do not come.

INT: So what do you do? Do you continue giving the ARVs for 12 months?

PART: We encourage them to come.

PART: No not 12 months. They tell us when they come like in April for the Easter holidays and we take the bloods then.

INT: Do you have a way of checking if the patients did actually come for the appointment?

PART: Usually we have an appointment book in which we book them and we record the patients that we expect on a particular day.

INT: Do you think something can be done about the patients who are working in South Africa?

PART: It’s very difficult

PART: If RSA and Lesotho can work together to assist so that they can get their medication while they are there and should they come back home they should be able to continue getting the care as long as they have something written down. Because what we see is that the patient comes and then disappears for six or so months before they come again. And when we ask them they say they were getting treatment in RSA but there will be nothing written down as proof that they have been getting medication. So you are not sure whether they have actually been taking the medication or not. So if they can work together maybe it can get better.
PART: But some of the patients honestly were getting their medication in South Africa but not all. Some of them tell us that they were taking their medication but as was said they do not have any proof. But some of them do have some proof.

PART: But there patients on AZT who need to have their HB checked and we are in a dilemma to continue giving the treatment and we do not have a way of checking the HB as we know that a side effect of taking AZT is that it reduces the Hb level.

PART: We used to have a machine for checking the HB level but now we no longer have it. It’s broken.

PART: Even the one at the hospital is not working. Even VDRL we were doing it ourselves. The slides for this one are not there. If we can have those then at least we can try to manage the patients locally without increasing the patient loads at the hospital lab.

**Question 8**

INT: Is your facility adequately staffed to provide ART services efficiently?

PART: Yes

INT: When you look at the population that you serve, do you think you are adequately staffed?

PART: Exclaims Achhhh!! As for the population, it’s fifteen thousand nine hundred and something

INT: And how many registered nurses are you?

PART: We are 2 and one Nurse clinician

INT: So do you think the three of you can adequately provide services at your facility and to serve a population of fifteen thousand nine hundred and something?

PART: No, we are not enough. We could have addition of three more registered nurses, because we still have to do other duties. We are doing deliveries there and it means if there are deliveries it means more shortage of staff.

INT: Now if you are two on duty and a delivery comes what would happen?

PART: MmmH!! Disaster

PART: No, we are not adequately staffed.

INT: You think you will be ok if you are how many registered nurses?

PART: 5

PART: I don’t think it will be possible. At least if we are 4

PART: With this supermarket approach it is very difficult to get all services done properly
INT: On average in a day how many patients are you guys seeing?
PART: More than 100 in total at our facility and we are only 3. But we have the nursing assistants to assist.

**Question 9**
INT: Do you feel you are confident and competent to provide ART services effectively? Do you think you have enough knowledge and skill to provide these services?
PART: Confidence is there, enough knowledge and skill is there, competence is there.
INT: Do you feel there are some areas that are lacking?
PART: Always we need some refresher courses to remind us of what is supposed to be happening.
PART: Confidence, yes
PART: Competence yes
PART: But we still need refresher courses, like was said
PART: Something to remind us that we are on the right track

**Question 10**
INT: Are you generally satisfied with the ART services that you are currently providing? Do you think you are doing a good job? Or do you think you can do better
PART: We are not satisfied. The CD4+ machine is not functioning but we are doing something.
PART: We are doing our best given the situation.
PART: Yes we are
PART. I am not satisfied. If we can have something to monitor the CD4+ on our own and not to send somewhere else. There are many patients who are not on ART and we have lost 2 to 3 due to cervical cancer. So if we can be able to screen for that as well.
PART. Yes I am satisfied, but the CD4+ issue is a problem everywhere and I don`t know. But we are trying our best so far.

**Question 11**
INT: Are you doing any monitoring and evaluation of ART program? Do you a monitoring and evaluating system so that at the end of the year you can sit down and look at your performance?
PART: EGPAF is the one collecting statistics and after a while they give us feed-back. But also the DHMT. It is done annually.

INT: Are you part of the evaluation process. Do they ever find out from you what you think about your performance?

PART: Usually what happens, we have PHC planning meetings. But last quarter we were not represented. They advise on our performance and areas that need improvement.

PART: Through DHMT and we go to Morija every month for statistical evaluation. They give us some feedback.

**Question 12**

INT: Are there any other challenges that you are currently facing in the provision of ART services, besides the CD4+ machine that is not available?

PART: The major challenge that we have are these people working in South Africa. You find that if he comes today, next month he sends somebody, because he is in Capetown or Pretoria. We advise them that maybe it`s better to take transfer, but they say they do not trust the tablets there and find it best to collect drugs from here. So they will be sending somebody because it`s expensive and they take even six months. We try to advise the relatives and you get caught up on whether you continue giving the drugs or you should stop. So it becomes a problem. You advise the relative and you get caught up as to whether I should continue giving the drugs or I should stop. If I stop or withdraw the treatment, maybe this was a good patient taking the medicine properly and if I stop the patient will become sick. If I continue, maybe this patient needs close monitoring. So really it becomes a challenge. This is a complicated situation.

PART: There so many patients on ART and they come in large numbers everyday. So it`s tiring.

PART: They don`t follow their appointment dates.

PART: They come any time they like.

PART: So if I am working from eight to three, at three I will be very exhausted to even look at the appointment book to see if people who were supposed to come did show up. So tracking of those who defaulted can be missed because I will be tired.

**Question 13**

INT: Do you have any suggestions for improvement of the ART program?
PART: To the higher level – the supply system of specifically 1F (TDF, 3TC, EFV) which is the first line treatment in Lesotho. Its consumption is very high and there are times when NDSO says the supply is not adequate and we therefore limit the amount given to patients. Like my colleague was saying that sometimes we give a 2 months` supply and then we have to give for a week or two weeks and the patients have to come back again. I don't know what other clinics are doing with people who work in South Africa and it is a big challenge.

PART: To the higher level - the CD4+ machine must be available at all facilities. That would really help and that would make life a lot easier. Ribaneng clinic used to have a PIMA machine that monitored CD4+ and it was easier for them and their monitoring was better than us.

PART: We need refresher courses

PART: We are running short of HIV care cards.

INT: Have you ordered any more of the cards?

PART: We have communicated with the DHMT who referred us to EGPAF but till today we have not received anything.

PART: Maybe they have a lot work to do.

PART: But they are getting finished due to the large numbers of clients that we see every time.

PART: MmmmmH. Can I speak in Sesotho?

INT: Yes please go ahead.

PART: There are patients that come for refills. And we consult them on each visit. In other clinics, they see the patients after three months for as long as they do not have any problems. So I think if we can also implement that it will reduce the numbers of patients that we see every day. And it will make our work much easier.

INT: You mean the patients consult you after three months?

PART: We give a supply of 3 months to the patients for as long as they do not have any problems. So they get their drugs for three months and each month they do not come for consultation. They will only come after the three months is over or before that if they have a problem. I think that can help reduce the numbers of patients that we see per day. And only when we write the end of month report that is when we see that a certain patient did not come for their appointment.

PART: But that also depends on the staffing pattern of the clinic. And we are also doing a supermarket approach in providing health services. But we can try and see if it works.
PART: On the day they only go to the pharmacy for the refill, it will be tricky as there are days when there only two registered nurses on duty and ARVs are only dispensed by the registered nurses.

PART: The lay counsellors are not allowed to dispense ARVs. We need a pharmacist and they said they shall see. The challenge was due to a lack of accommodation in our facility. AT least with a pharmacist our work load will be reduced and we won’t have to dispense medications.

INT: Are there any other problems?

PART: We have no water at our facility.

PART: Accommodation is too little for the staff working at our facility. We also need an ambulance. We have to provide for the patients that need to be transferred. Imagine!

PART: Another challenge is that there are too many partners. They come to screen for HIV and offer incentives to the patients. So you find that an individual will test again and again as long as they can get something in return.

PART: Even those on ART will test again since they want the incentive.

PART: Hence the reason why our statistics are not changing at all. And it means that patients have been recorded twice.

PART. Some of the partners have forms which they send back to us here at the clinics. And when we check we find that this patient is already on ART but they have been recorded as a new HIV patient with that partner.

PART: There needs to be way of recording the patients maybe using IDs so that it can be picked up who has tested before and where so that they are not recorded twice or even more.

PART: Even now there is a partner that has been given forty days to test for HIV and they are just doing so. Each tester must have at least six hundred individuals tested. So that really is a problem. They have set targets and they are just testing.

PART: There could be an electronic card that is given to identify HIV patients. Or an electronic sticker on the health books. But the patients also can change the health books and buy new ones. It’s a challenge! We need something new.

PART: That’s why it’s being wondered as to why after all our efforts on ART there is no change at all. In fact the incidence and prevalence is on the rise. And patients have a right to go anywhere. Sometimes the patients do not understand and hence the reason why they test many times and they test anywhere.

INT: Thank you for your time. I don’t have any more questions. Once again thank you.
Interview transcripts of focus Group discussions with ART patients

The interview was conducted in Sesotho and translated into English by the researcher. The interview was recorded with a voice recorder.

Introduction

INT: My name is Isabel Nyangu, and I thank you for agreeing to participate in this study. The purpose of this study is to evaluate the antiretroviral therapy program in the primary health care setting. I have requested you to participate in this study because I believe that you can provide valuable information on this matter. I therefore urge you to answer the following questions to the best of your knowledge.

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If you agree to participate, you will be required to participate in a focus group discussion which will take approximately 1 hour 30 minutes.

If you have any questions about the study or about participating in the study, please feel free to ask me now. If you have questions after completing the questionnaire, you can call me at +266 62017505.

PARTs: Yes, we allow you Mme

INT: I am not going to mention your names at all for confidentiality purposes and I therefore kindly ask you to avoid mentioning individuals` names as much as possible. I will kindly ask for your ages and how long has it been since you started using ART services.
Demographic characteristics of patients
Sample 3; (n=7)

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Sample 4; (n=4)

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**Question 1**

INT: What are your experiences and views regarding the ART program in the Primary Health Care setting of Lesotho?

PART: It’s a program that has really helped us to survive

PART: We get the services well

**Question 2**

INT: On what days of the week do you come to receive ART services?

PART: Monday to Friday

INT: What if you come on a Saturday?

PART: They do no help us
**Question 3**

INT: Approximately how much time do you spend at the facility while seeking ART services?

PART: We get the services on time but it depends on how many patients are in front of the queue before me.

PART: It also depends on the day because on some days there are many patients. Like today you see we are still here it means there were many patients.

PART: Sometimes there are disturbances from people from other agencies who will come to see the registers and hence the nurses stop giving us the services to attend to those people. They will come and finish seeing the patients later.

INT: You are saying that there are other responsibilities that the nurses have to attend to and that generally affects the speed at which services are given?

PART: like now you see that there is no water and now the vehicle from the hospital has brought water for the nurses. So they had to stop and get the water for their houses.

**Question 4**

INT: State the ART services that are offered to you at the facility.

PART: Support sessions,

PART: Bloods are taken on Wednesdays only

PART: We are also given food for the kids. It is mostly given to us who are on ARVs

PART: But since I have been on ART I have not been given those food handouts and I don`t know why

PART: They are not given to everyone. It depends on the health status of the patient and they are only given to an individual for a maximum of six months after which they check if the individual has gained weight and they are removed from the program. Then others are put into the program.

**Question 5**

INT: Are ARVs always available at the facility? Or are there times when ARVs are not available or the stock is too little for everyone?

PART: For us who have been on ARVs for a long time it has happened that there were times when the ARVs were few. And maybe this week you get ARVs for maybe 3 days and you are asked to come back after some days. The reason was that the ARVs were
not available. But the nurses would tell us that the drugs were ordered but had not been delivered as the supplier did not have them.

INT: So what would happen after getting the supply for a few days? Were you able to come back to get the rest of the stock?
PART: We were able to come back. But for others you would find that they were not able to come back. They would be given the supply for a longer period until they can come back.
PART: But for those who worked in South Africa they were even given a supply for three months as it is known that they take a long time. And should the supply run out then there will be a problem in the health of that individual.
PART: Sometimes the nurses asked from other clinics and even the nearby hospital and those of us from nearby were asked to constantly check if they had arrived.

**Question 6**

INT: Are other drugs for other ailments always available at the facility?
PART: They are available.
PART: It used to happen a long time ago not nowadays. By then we were given options to buy from the chemist shop. But I last experienced it a long time ago.
PART: I have never heard that there are no drugs. I always get all the medication I need.

**Question 7**

INT: Are you always able to go through routine tests that are necessary to monitor your antiretroviral therapy?
PART: This is the second year and now even going to the third year without a CD4+ machine. No CD4+ count is being done. But blood for other tests is being taken like for kidneys and the liver. The CD4+ is a challenge.
INT: Then how do the nurses monitor you since the CD4+ machine is not working?
PART: They have informed us about the seven clinics on the paper just behind you. Those are the facilities from which CD4+ tests are being done.
PART: So an individual personally goes there.
PART: The problem with those clinics, especially Facility X, is that they refuse to take bloods to check the CD4+. It is specifically the people who work there that refuse to do that. And they send us back. So now we don`t know what to do. Others are helped in other facilities, like Facility Z, they are helped and the bloods are taken every
Wednesday. And they do not ask where you are from. But the people at Facility X want to only check the CD4+ of patients that they have tested. They are the same as those from the Facility Y. They also only check CD4+ for the patients that they tested. If you are already sick they also refuse to check your CD4+. AT facility X they say the bloods must come from this facility already being taken because they do not have adequate staff. But now another problem is that this facility does not have its own transport.

**Question 8**

INT: Do you think the staff at the facility is adequate to provide ART services?
PART: The nurses are adequate. They are three.
PART: But I think they are not enough. Because if there is a woman to deliver, they stop assisting us so they assist to do the delivery. And the patients wait for a long time. Again on Mondays and Fridays only two members of staff are on duty. That is one registered nurse and a nurse assistant. So if a woman in labour arrives on those days, it means that the services will be received very late as the delivering woman has to be helped.
INT: How many additional nurses do you think can be provided?
PART: At least if they are five, I think it will really help.

**Question 9**

INT: Do you think staff at the facility is qualified and competent to provide ART services?
PART: They seem to have enough knowledge as we receive the services like always

**Questions 10**

INT: Are you generally satisfied with the way the ART services are being offered?
PART: Yes
PART: In terms of ARVs we are getting them correctly.
PART: It’s just that many patients on ART complain of hunger. The tablets make them feel hungry. And usually they end up not taking them correctly as they make them feel hungry.
INT: Have any of you experienced this excessive hunger?
PART: Yes. You will find that when we come to the clinic we usually have some packed food. Truly speaking they make us abnormally hungry.
PART: Others who are employed, when they tell their employers that they are on ART, they send them away from work.
INT: So how have you been coping?
PART: Even for prospective employers we are now afraid to tell them that we are HIV positive as they will not understand that we must collect the drugs every month. Some employers tell us that we get off only after 2 months. And at the clinics I would have only been given a supply for one month.

**Question 11**
INT: Are there any challenges that you face while seeking ART services?
PART: No they are not there. The services are being provided well.
PART: Some of the problems are not from the clinic as such. For example there is no CD4+ machine but the bloods can be taken to the nearby Hospital.
INT: Is there ever a time that some patients are refused drugs for a supply of maybe three months especially those working in South Africa?
PART: It depends on the available stock of ARVs. If the stock is available. They are given. Usually they are given for two months.

**Questions 12**
INT: Do you have any suggestions for improvement?
PART: There is a suggestion box that we are encouraged to use.
INT: What about you, do you have suggestions that you think can improve the ART services?
PART: This issue of water is a problem. And even when we come we have to ask for water from the village. Imagine.
PART: The CD4+ must be available for this facility so that we don`t have to go elsewhere.
PART: A problem that can arise is that for some of us who will be desperate to get the CD4+ count done, we end up testing again at the facilities that have such machines. And it means that one is actually recorded twice in the system. Even if they are already on ARVs.
PART: Such a situation results from the desperation to know the CD4+ count when one is not feeling well. So it is actually happening. And they just go and test again so that they know the CD4+ count.
INT: So do they start the ART again there?
PART: It’s just for the CD4+. And if on ARVs the stage is usually inappropriate to start ART. So they leave without the ART but with the CD4+ count.

PART: Even now other patients are dying and probably due a low CD4+ which is never known due to the missing machine.

**Question 13**

INT: Are there any Questions about this discussion?

PART: Not really. But we would be happy that when there are changes. Note that people are making money in the name of HIV and AIDS and yet we the patients are nowhere to actually be informed. Even when the Government asks for money, it is in the name of HIV, but we are not involved or even aware of the benefits or changes occurring.

PART: It’s like we are making other people survive better in the name of HIV.

INT: Is it wrong then that the donors want to assist us because now our country is number 2 in terms of HIV prevalence?

PART: We have the wrong statistics to be honest. I can test here and be found to be positive. But my CD4+ is not taken. I go to facility Y, and I test again. It means that I have been tested twice. In another instance, maybe I have been tested but do not understand. I then go to facility A and I test again. It means I have been tested twice again. I can even go to another facility B and be tested again. Just because I do not really accept that I am HIV positive. And it means one person has been recorded more than once. Those statistics are wrong.

PART: I think we are number two in the world just because a person tests more than once and even tests ten times and each time it’s being recorded.

PART: Even when the data is collected, they do not record my name but just the fact of how many patients tested.

PART: There are many issues. Another issue is that some of us stop taking the ARVs at this facility and then decide to go to another facility at which they will be denied and be told to return to their original facility and get a transfer. But such an individual would prefer to buy a new health book and start the whole process again. The second one is that the NGOs helping the Ministry of Health, on the testing issues, they don’t work well with the clinics. For instance in this village, those NGOs just get into the village and start testing individuals without informing the clinic. And there are some of us who do not understand, who then test again regardless of them being on ART or pre ART period. That is why this country has statistics and we are number two in the whole world. I personally refuse even though I might not be well educated in maths. Around 2004 it
was maybe seven or so people who were positive. It’s the issue of how to check newly tested people that needs to be addressed. So that even if an individual goes to another facility there must be way of recognising that such an individual has tested. Maybe the voting IDs could be used to check if someone has not tested before. Maybe it can be done by a kind of a machine. In that case the individual is just counselled. That can assist in making correct records. The current statistics are wrong. There are other problems that HIV positive patients have due to lack of adequate care. You will also find that some of us have been lay counsellors and unfortunately the work we do is not appreciated at all. We are only given a meagre salary of only M700.00. Such a salary takes more than five years. Those that are new recruits will also start at the same amount of money. It doesn’t make sense. Even when there are salary adjustments from the Government, we are not given any. We just continue to be given M700.00. And one wonders why? It makes us demoralised as lay counsellors. A lot of money is returned from NGOs because of lack of use. But we are here and crying for more money. For more than ten years. I feel the Ministry is not looking out for us. Let me end there.

INT: Thank you very much for your time and participating in this study.
### Appendix 6a: Cronbach’s Alpha Coefficient for quantitative data collection tool

#### Reliability

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Syntax

RELIABILITY
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**Scale: ALL VARIABLES**

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<sup>a</sup> Listwise deletion based on all variables in the procedure.

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<tr>
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Appendix 6b: Cronbach’s Alpha Coefficient for suggested tool

RELIABILITY
/VARIABLES=ARVs_always_available Others_drugs_always_available Staff_adequacy Staff_qualified_and_competent Adequacy_of_resources_and_equipment Adequacy_and_efficiency_of_ART_services ART_services_routine_accurate_efficient Time_spent_allows_patients_to_receive_all_services Documentary_evidence_adequate_and_accurate Patient_satisfaction Job_satisfaction Monitoring_and_evaluation_available
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE CORR
/SUMMARY=TOTAL.
## Reliability

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<tr>
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<tr>
<td>Comments</td>
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<tr>
<td>Weight</td>
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<td>User-defined missing values are treated as missing.</td>
</tr>
<tr>
<td>Cases Used</td>
<td>Statistics are based on all cases with valid data for all variables in the procedure.</td>
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Syntax

RELIABILITY
/ VARIABLES=ARVs_always_available
Others_drugs_always_available Staff_adequacy
Staff Qualified_and_competent
Adequacy_of_resources_and_equipment
Adequacy_and_efficiency_of_ART_services
ART_services_routine_accurate_efficient
Time_spent_allows_patients_to_receive_all_services
Documentary_evidence_adequate_and_accurate
Patient_satisfaction
Job_satisfaction Monitoring_and_evaluation_available
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE CORR
/ SUMMARY=TOTAL.

Resources

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[DataSet1] C:\Users\admin\spss\Suggested tool.sav
## Scale: ALL VARIABLES

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<th>Cases</th>
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<sup>a</sup> Listwise deletion based on all variables in the procedure.

### Reliability Statistics

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<th>Cronbach's Alpha Based on Standardized Items</th>
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<td>0.800</td>
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<td>1.539</td>
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<td>Services always routinely, accurately, and efficiently delivered to allow accessibility</td>
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<td>0.507</td>
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<td>1.76</td>
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**Inter-Item Correlation Matrix**

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<th>The health facility has adequate staff to provide ART services</th>
<th>The health facility is qualified and competent to provide ART services</th>
<th>The organisational structure at the facility allows for the provision of adequate and efficient ART services</th>
<th>Services always routinely, accurately, and efficiently delivered to allow accessibility</th>
<th>Time spent at the facility allows patients to receive all ART services required</th>
<th>Documentary evidence at the facility is adequate and accurate</th>
<th>Patients receiving ART at the facility are generally satisfied with ART services being offered</th>
<th>Respondent generally satisfied with the job and the ART program</th>
<th>There is an efficient monitoring and evaluating system for the ART program</th>
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<td>.165</td>
<td>-.153</td>
<td>-.018</td>
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<td>-.108</td>
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<tr>
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<td>.070</td>
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<td>-.098</td>
<td>-.021</td>
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Patients receiving ART at the facility are generally satisfied with ART services offered:

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Respondent generally satisfied with the job and the ART services being offered:

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There is an efficient monitoring and evaluating system for the ART program:

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242
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<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
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<td>Drugs to manage other health conditions are always available</td>
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<td>The organisational structure at the facility allows for the provision of adequate and efficient ART services</td>
<td>22.41</td>
<td>32.382</td>
<td>.579</td>
<td>.845</td>
<td>.729</td>
</tr>
<tr>
<td>Services always routinely, accurately, and efficiently delivered to allow accessibility</td>
<td>23.06</td>
<td>38.059</td>
<td>.507</td>
<td>.929</td>
<td>.745</td>
</tr>
<tr>
<td>Time spent at the facility allows patients to receive all ART services required</td>
<td>23.12</td>
<td>40.735</td>
<td>.402</td>
<td>.601</td>
<td>.759</td>
</tr>
<tr>
<td>Documentary evidence at the facility is adequate and accurate</td>
<td>22.71</td>
<td>35.846</td>
<td>.522</td>
<td>.849</td>
<td>.739</td>
</tr>
<tr>
<td>Patients receiving ART at the facility are generally satisfied with ART services offered</td>
<td>23.00</td>
<td>41.625</td>
<td>.169</td>
<td>.832</td>
<td>.772</td>
</tr>
<tr>
<td>Respondent generally satisfied with the job and the ART services being offered</td>
<td>22.47</td>
<td>34.265</td>
<td>.637</td>
<td>.770</td>
<td>.724</td>
</tr>
<tr>
<td>There is an efficient monitoring and evaluating system for the ART program</td>
<td>22.94</td>
<td>37.684</td>
<td>.511</td>
<td>.726</td>
<td>.744</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Statistics</th>
</tr>
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<tr>
<td>Mean</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>24.71</td>
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Appendix 7a: Letter to Ministry of Health Lesotho

Scott Hospital
PO Box 149
Morija 190
Lesotho

The Chairperson
Research and Ethics Committee
Ministry of Health
Maseru 100
Lesotho

Dear Sir/Madam

RE: PERMISSION TO CONDUCT RESEARCH

I am a student registered at the University of South Africa and have great interest in HIV/AIDS.

I wish to apply for permission to undertake a study on “Evaluation of Antiretroviral Therapy program in the primary health care setting in Lesotho”. The purpose of the study is to evaluate the implementation processes in the provision of antiretroviral therapy. The study will contribute to the understanding of the challenges and suggestions for possible improvements in the provision of antiretroviral therapy services.

The study has been approved by the Research and Ethics Committee of the University of South Africa. For more details kindly refer to the attached proposal and if you have any queries, please do contact me or my supervisor on the details provided below.

Yours faithfully

Isabel Nyangu
(Researcher; +266 620 175 05)
Professor ZZ Nkosi
(Supervisor; +277 429 6758)
P. O Box 149
Morija 190
Lesotho

The Chairperson
The Research and Ethics Committee
Ministry of Health
P. O. Box 524
Maseru 100

24 February 2014

Dear Sir/Madam

RE: EVALUATION OF THE ANTIRETROVIRAL PROGRAM IN THE PRIMARY HEALTH CARE SETTING IN LESOTHO (ID136-2014)

I hereby request permission to expand the above mentioned study to include other districts of Lesotho namely Quithing, Qacha’s Nek, Leribe, Berea, Butha Buthe, Thaba tseka and Mokhtlong.

The researcher having conducted the pilot study has realised that most primary health care settings only have a maximum of 3 registered nurses / midwives who are not all available at the time of data collection. Furthermore not all the primary health care settings are accessible due to the terrain of the country. Hence the required sample size of 100 participants might not be reached for the study to be a true reflection of the target population if only done in the initially selected districts of Maseru, Mafeteng and Mohales Hook which will be increased in this case.

Expansion of the study to other districts will however result in an increased minimum sample size of 250 as the target population will also be increased. Attached is the revised protocol.

I hope my request will be favourably considered

Yours Faithfully

Isabel Nyangu (Researcher, +266 620 175 05)
Appendix 7c: Letter to District Health Management Team (DHMT)

The Focal Person
Maseru District Health Management Team (MDHMT)
Maseru 100

30 July 2015

Dear Sir/ Madam

PERMISSION TO CONDUCT RESEARCH

I, Isabel Nyangu, student number 44945108 with the University of South Africa (UNISA) seek permission to collect data in health centre facilities managed by the Maseru DHMT. The title of the study is ‘Evaluation of Antiretroviral Therapy Program in Primary Health Care settings in Lesotho’.

Attached is ethical clearance from UNISA, ethical clearance from the Ministry of Health in Lesotho and a protocol for the study.

I am looking forward to your response.

Yours faithfully

Isabel Nyangu
Appendix 7d: Letter to Christian Health Association of Lesotho (CHAL)

The National Catholic Health Coordinator
Lesotho Catholic Bishops Conference (LCBC)
Christian Health Association of Lesotho (CHAL)
Maseru 100

5 August 2015

Dear Sir/ Madam

PERMISSION TO CONDUCT RESEARCH

I, Isabel Nyangu, student number 44945108 with the University of South Africa (UNISA) seek permission to collect data in health centre facilities managed by the Lesotho Catholic Bishops Conference (LCBC). The title of the study is ‘Evaluation of Antiretroviral Therapy Program in Primary Health Care settings in Lesotho’.

Attached is ethical clearance from UNISA, ethical clearance from the Ministry of Health in Lesotho and a protocol for the study.

I am looking forward to your response.

Yours faithfully

Isabel Nyangu
Appendix 7e: Letter to Maseru City Council

The Director of Health and Environment
Maseru City Council
Maseru 100

30 July 2015

Dear Sir/Madam

PERMISSION TO CONDUCT RESEARCH

I, Isabel Nyangu, student number 44945108 with the University of South Africa (UNISA) seek permission to collect data in health centre facilities managed by the Maseru City Council. The title of the study is ‘Evaluation of Antiretroviral Therapy Program in Primary Health Care settings in Lesotho’.

Attached is a supporting letter from my supervisor at UNISA, ethical clearance from UNISA, ethical clearance from the Ministry of Health in Lesotho and a protocol for the study.

I am looking forward to your response.

Yours faithfully

Isabel Nyangu

[Signature]
05 August 2015
To:
The Director of Health and Environment
Maseru City Council
Maseru 100
Lesotho

From: Prof Z.Z. Nkosi
Department of Health Studies
Theo van Wyk Building 7-156
University of South Africa
PRETORIA

Dear Sir

I hereby wish to confirm that Ms Isabel Nyangu (student number: 44945108) is a Doctoral student registered in the Department of Health Studies at the University of South Africa. Her title is: EVALUATION OF ANTIRETROVIRAL PROGRAM IN THE PRIMARY HEALTH CARE SETTING IN LESOTHO.

Your assistance will be highly appreciated.

Kind regards

Prof Z.Z. Nkosi (Supervisor)
ANNEXURES
Annexure 1: Clearance letter from UNISA
Ministry of Health
PO Box 514
Maseru 100

26 February 2015

Isabel Nyangu
Student # 4494-510-8
D Litt et Phil candidate
University of South Africa

Dear Ms. Isable,

Re: Evaluation of antiretroviral therapy program in the primary health care setting in Lesotho (ID156-2014) Follow up

Thank you for resubmitting the above mentioned proposal with modifications. The Ministry of Health, Research and Ethics Committee having reviewed your modified protocol hereby authorizes you to continue this study among the proposed population. The study is authorized with the understanding that the protocol will be followed as stated. Departure from the stipulated protocol will constitute a breach of the permission.

We are looking forward to have a progress report and final report at the end of your study.

Sincerely,

[Signatures]
Dr. L. Maile
Director General Health Services

Dr. Jill Sanders
Co-Chairperson
National Health Research and Ethics Committee
Ministry of Health
PO Box 514
Maseru 100
04 December 2014

Nyangu Isabel
Student No. 4494-510-8
University of South Africa

Dear Nyangu,

Re: Evaluation of antiretroviral program in the primary health care setting in Lesotho (ID136-2014)

Thank you for resubmitting the above mentioned proposal. The Ministry of Health, Research and Ethics Committee having reviewed your modified protocol hereby authorizes you to conduct this study among the specified population. The study is authorized with the understanding that the protocol will be followed as stated. Departure from the stipulated protocol will constitute a breach of the permission.

We are looking forward to have a progress report and final report at the end of your study.

Sincerely,

Dr. L. Maile
Director General Health Services

Dr. A. Ranotsi
Chairperson
National Health Institutional Review Board
Annexure 3: Permission letter from DHMT

Nurse In charge
Maseru Health Centres
Dear Sir/ Madam

Ms Isabel Nyangu

Maseru DHMT is in receipt of the letter from the Ministry of Health authorising Ms. Isabel Nyangu to conduct a study entitled ‘Evaluation of antiretroviral therapy program in the primary health care setting in Lesotho’ in your facilities.

It is against this background that the Maseru DHMT kindly asks your facility to assist her to make this study a success.

Thanking in advance for your usual cooperation

Yours Faithfully

LS Rantsatsi (Mr.) Maseru DHMT focal person
Annexure 4: Permission letter from CHAL

August 20, 2015

Dear Sir/Madam

RE: Research by Ms Isabel Nyangu

This serves as proof that the above student from National University of Lesotho has been granted permission by our office to conduct her Research on Evaluation of ART programme in Primary Health setting of Lesotho.

The information regarding her Research has been provided to Lesotho Catholic Bishops’ Conference.

Please assist her with all HIV information required by her Research.

Thank you in advance.

Yours Sincerely

Libuseng Khoanyane
National Catholic Health Coordinator
Lesotho Catholic Bishops’ conference