ASSESSING THE LINKAGE BETWEEN PREVENTION- OF- MOTHER-TO–CHILD-TRANSMISSION OF HIV AND ADULT ART SERVICES IN TWO NIGERIAN MILITARY HEALTH FACILITIES IN KADUNA STATE

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DECEMBER, 2014

DECLARATION

I declare that the work in the dissertation entitled "Assessing the linkage between prevention- of-mother-to–child-transmission of HIV and adult ART services in two Nigerian military health facilities" has been performed by me in the Department of Community Medicine under the supervision of Prof. Kabir Sabitu, and Mal. Saidu Sadik .

The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at any university.

Cheshi Fatima Ladidi		
Name of student	Signature	December, 2014

CERTIFICATION

This dissertation entitled "ASSESSING THE LINKAGE BETWEEN PREVENTION- OF-MOTHER-TO–CHILD-TRANSMISSION OF HIV AND ADULT ART SERVICES IN TWO NIGERIAN MILITARY HEALTH FACILITIES IN KADUNA STATE" by Cheshi Fatima Ladidi meets the regulations governing the award of the degree of Master of Public Health of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literacy presentation.

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LIST OF ACRONYMS

3TC: Lamivudine

AIDS: Acquired Immune Deficiency Syndrome

ANC: Antenatal Care

ART: Antiretroviral Therapy

AZT: Azidothymidine (Zidovudine)

CCMT: Comprehensive Care, Management and Treatment

EFV: Efavirenz

HIV: Human Immunodeficiency Virus

KII: Key Informant Interview

MTCT: Mother to Child Transmission

NMOD: Nigeria Ministry of Defence

NSP: National Strategic Plan

NVP: Nevirapine

PHC: Primary Health Care

PMTCT: Prevention of Mother to Child Transmission of HIV

VCT: Voluntary Counselling and Testing

DEFINITION OF KEY TERMS

Access to ART, care and support services: Refers to successful completion of registration of the referred PMTCT client at the ART clinic

ART: General term used to refer to Antiretroviral Therapy which medication is given to HIV positive patients whose disease progression has reached a stage where medication is required. Initiation of treatment is prompted by either CD4 cell count or by clinical staging using guidelines provided by the World Health Organization.

CCMT: Comprehensive Care Management and Treatment of HIV is the term used to refer to the health services which aim to prevent HIV infection and guide the continuum
of care given to those already infected with HIV. Health services included in CCMT are voluntary counseling and HIV testing, medical care and treatment, psychosocial support; nutritional assistance; social support; and home- and community-based care services.

CD4 cell count: Measure of CD4 T cells per cubic millimeter of blood. A count of 200 cells/mm3 or less presents significant risk of opportunistic infections and is commonly used as a proxy indication of when to begin ART.

Care and support: Services offered to HIV positive individuals who have a CD4 count above the ART initiation threshold. These services include CD4 count monitoring, psychosocial support (which can be delivered through support groups), nutrition counseling, HIV & AIDS education and treatment of opportunistic infections. They form part of the Comprehensive, Care, Management and Treatment package for HIV.

Out referral of patients: Patients referred from a given service to another. This can be an onsite referral where the service to which the patient is referred is on the same premises as the clinic doing the referring or it can be a referral to a clinic off the premises.

Linkages: Formal process to ensure that the client has received the services to which he/she was referred and that the client's needs have been addressed.

Referral: A process by which immediate client needs for prevention, care, treatment and supportive services are assessed and prioritized and clients are provided with assistance in identifying and accessing services.

Referral service: A service recommended to a patient which is not offered at that particular service point. Typically accompanied by a referral letter or form to present at the service point to which they are being referred.

Treatment: Refers to the clinical management and care of physical symptoms and pathologies.

SUMMARY

Key words: **HIV, PMTCT, Referral linkages, Nigerian, Military**

Introduction: HIV is one of the contributory factors to cause of death among women of reproductive age. Mother-to-child transmission (MTCT) of HIV accounts for about 10% of all new infections. As a prevention strategy, PMTCT programme was designed to cater for HIV positive pregnant women during pregnancy, labor, and delivery and post partum periods to prevent the transmission of HIV infection from mother to child. Effective models of the PMTCT programme are designed to have strong referral linkages to the adult ART services, in order to achieve continuity of care for mother and child, following delivery. This linkage is to ensure that not only the children are born free of HIV but also the mothers live prolonged quality lives, with quality adult ART care. The study was conducted to determine the proportion of women accessing PMTCT who were referred to the adult ART clinic, the proportion of referred HIV positive mothers who reached and accessed ART services, identify the factors associated with PMTCT-ART service linkage and determine the rate of uptake of antiretroviral treatment by HIV positive women, when referred from the PMTCT clinic to adult ART clinic in the selected facilities between January, 2009 to December 2013.

Methods: A cross sectional study was conducted in two military health facilities in Kaduna state. The facilities were selected using a multi stage sampling technique and the women were selected using systematic sampling technique, after which a review of their health records was conducted.

These women were traced to their homes and a structured questionnaire was administered to 372 respondents comprising of those who were liked and those who were not linked to adult ART services to obtain information on why they were linked or not. The respondents were described

by socio-demographic characteristics. Three (3) sessions of focus group discussion as qualitative method among doctors, nurses and health records personnel working in the facility to identify the risk factors associated with non linkage to adult ART services were conducted.

Results: A total of 372 women of reproductive age who assessed ANC and PMTCT services were selected from the two facilities. Mean age of women who were not linked to ART services was 30.9(± 4.9) while for those linked to ART services was 31.4(±4.6). Of the 5720 women who assessed ANC services, 574(10%) assessed PMTCT services in these facilities. Only 3.3% of the 151 eligible women had no indication of referral to ART. Similarly, only 4.1% of the eligible women with no indication of referral traced at ART clinic, which was further emphasized by the responses from the focus group discussion where clients not returning for their CD4 count results, stigmatization and non disclosure to partner as factors that militated against good linkages. While more than 53.2% of the eligible women already on ART were traced to the ART clinic. One hundred and fifty-three (153) which was 98.1% of the women were referred to adult care and support services. A proportion of about seven percent(7%) of ART eligible women missed the opportunity of accessing ART services due to the weak referral linkages in the facilities At bivariate and multivariate analysis level, referral status, CD4 eligibility were found to be statistically significant.

Conclusion: The weak referral linkages found in these facilities was found to be associated with CD4 eligibility and referral status. Also the place of delivery of baby, poor ANC-PMTCT service integration, self stigmatization, non-disclosure to partner and security challenges were identified from the FGD as associated factors. Therefore, there is need to entrench effective service integration by involving all relevant staff and departments in the care and support of the PMTCT clients in These facilities.

CHAPTER ONE – INTRODUCTION

1.1. Background Information

Human Immunodeficiency Virus (HIV) infection and the late stage Acquired Immune Deficiency (AIDS), since first reported in the 1980s, in the United States of America, has progressively spread to become a global pandemic posing a public health challenge.[1] Globally, about 34.0 million people were living with HIV at the end of 2011. An estimated 0.8% of adults aged 15-49 years worldwide are living with HIV, although the burden of the epidemic continues to vary considerably between countries and regions. In 2011, 1.7 million people died from AIDS-related causes worldwide.[1]HIV/AIDS has continued to constitute a serious threat to the social and physical wellbeing of mothers and their babies across the globe especially in Africa. In the hardest hit countries of sub-Saharan Africa, more than 60% of all new HIV infections are occurring in women, infants and young children.[2] Women represent about half of all people living with HIV worldwide, and more than half (58%) in sub-Saharan Africa. HIV is one of the contributory factors to the leading causes of death among women of reproductive age.[3] HIV infection is known to infect/affect all regardless of race, sex, age, religious inclination, ethnic origin, and economic background. Mother to child transmission (MTCT) of HIV , accounts for about 10% of all new infections, with heterosexual route of transmission accounting for nearly 80% of all new infections.

As a prevention strategy, PMTCT programme was designed to cater for HIV positive pregnant women during pregnancy, labor, and delivery and post partum periods to prevent the transmission of HIV infection from mother to child. This is achieved through various strategies, including antiretroviral prophylaxis for mother and child during these periods.[4]Effective models of the PMTCT programme are designed to have strong referral linkages to the adult ART

services, in order to achieve continuity of care for mother and child, following delivery. This linkage is to ensure that not only the children are born free of HIV but also the mothers live prolonged quality lives, with quality adult ART care. Gender inequalities, differential access to services, and sexual violence increase women's vulnerability to HIV, and women, especially younger women, are biologically more susceptible to HIV infection. HIV affects the health of individuals, as well as having significant impact on households, communities, and the economic growth and development of nations. Many of the countries hardest hit by HIV also suffer from other infectious diseases, food insecurity, and other serious problems.[3]

Globally, young women are twice as likely to become infected with HIV as their male counterparts. In some areas, young women are more heavily impacted than young men.[3] Studies backed by scientific evidence have shown that there is wisdom in continuing to provide mothers living with HIV with the same combination regimens they take as prophylaxis during pregnancy for the rest of their lives (Option B+). This strategy has the potential to reduce transmission rates for future births, lower the odds of transmission to sexual partners, improve maternal survival and promote simplified treatment regimens.[5] Ethical considerations with regards to informed consent of the women concerned, is essential, while addressing respect for human rights, during implementation. An integrated approach of comprehensive prevention and antiretroviral prophylactic/treatment services with already existing maternal, neonatal and child health services will improve the efficiency and effectiveness of all interventions. When services are packaged in a user friendly manner, women are more likely to obtain the services they require and service efficiency will be enhanced.[6] Service integration is especially important in countries with generalized HIV epidemics, since HIV care is a substantial burden for already weak health care systems. Additional efforts are also needed to minimize social and structural impediments to

service delivery.[1]In the context of the programs for prevention of mother-to- child transmission (PMTCT), programs need to perform with 90–95% effectiveness across the various steps in the continuum in order to achieve the ultimate desired mother-to-child-transmission rate of less than 5%.[7]

Effective and functional models of integrated HIV care need to be developed to create testing and care networks with referral systems which are also responsive to the organized HIV services for pregnant HIV infected women. It is traditional to have PMTCT interventions/ services during pregnancy and delivery provided separately from HIV treatment care and support services required by the pregnant HIV-infected women and their infants after delivery. Recent studies have shown alarmingly high rates of loss to follow-up for these women, particularly in the transition after delivery, between PMTCT and lifelong HIV care services. Integrated HIV care, including provision of ART and antenatal services, whether within antenatal clinics or preferably in primary care clinics that provide continuity care for HIV-infected women and their children may need to be considered.[7] In order to reach the PMTCT goals and MDG 4 and 5, both PMTCT and maternal, neonatal and child programmes must shift focus from measuring and reporting the uptake of individual services (e g, HIV testing, ANC utilization, and availability of emergency obstetric facilities) to the retention of mother and baby across the entire care continuum and the number of mother–baby pairs who receive a full package of services.[7]

Sub-Saharan Africa, which accounted for only about 12% of the world's population, remained the most HIV/AIDS affected region of the world, with 23.5 million persons living with HIV in 2011, which is about 69%(more than two-thirds) of the HIV global burden.[1,8] Most children (94%) living with HIV are in Sub-Saharan Africa. There were an estimated 12 million HIV-infected women of reproductive age living in sub-Saharan Africa during 2011.[9] Almost all of the

nations in Sub-Saharan Africa have generalized HIV epidemics—meaning that their national HIV prevalence rate is greater than 1%.[1]Despite scale up of perinatal prevention of mother-to-child transmission (PMTCT) of HIV interventions, linkage to comprehensive HIV/AIDS care, for both the mother and baby, after delivery, has remained a challenge especially in developing countries in the Sub Saharan Africa.[10]

Despite the importance of rapid ART initiation for PMTCT, across sub-Saharan Africa most pregnant women face significant delays to starting ART.[11]Eligible pregnant women are typically referred to general adult ART clinics for treatment.[12] Once at ART clinics, pregnant women enter a standardized system of assessment and patient education that can delay ART initiation by several weeks.[13]In most settings, the systems for adult ART initiation are focused on the needs of the general adult population of non-pregnant women and men, as pregnant women comprise only a small fraction of new patients.[14] In the general population of non-pregnant adults, systemic delays in ART initiation are routinely used to allow time for patient education and psychosocial preparation before treatment [13], based on the idea that patient preparation before initiation may improve retention in care and treatment adherence over time[15], although evidence for this is lacking[16].

The 2011 national data has revealed that, Nigeria had a median HIV prevalence of 4.1%, from ANC sentinel survey, with the estimated number of people living with HIV/AIDS to be about 3.1 million. The cumulative AIDS deaths was about 2.1 million with females bearing a larger proportion of 1.61 million (52%) and annual AIDS Death estimates of 215,130 which again is higher among females, 118,390 (55%) by the end of the year, 2011.[17] In line with the national guidelines for PMTCT, adopted from the WHO guidelines for PMTCT programmes, as part of the four pronged approach in the PMTCT programme, the woman living with HIV and the

members of her family need a number of care and support services. These care and support services to be rendered to the HIV-infected women and members of her family include; medical care, family planning, screening and treatment of opportunistic infections, nutritional supplementation, psychosocial and spiritual support, and community-based care services, among others. These services are usually not all located at one site so that effective referral and linkages are necessary and should be in place.[4]

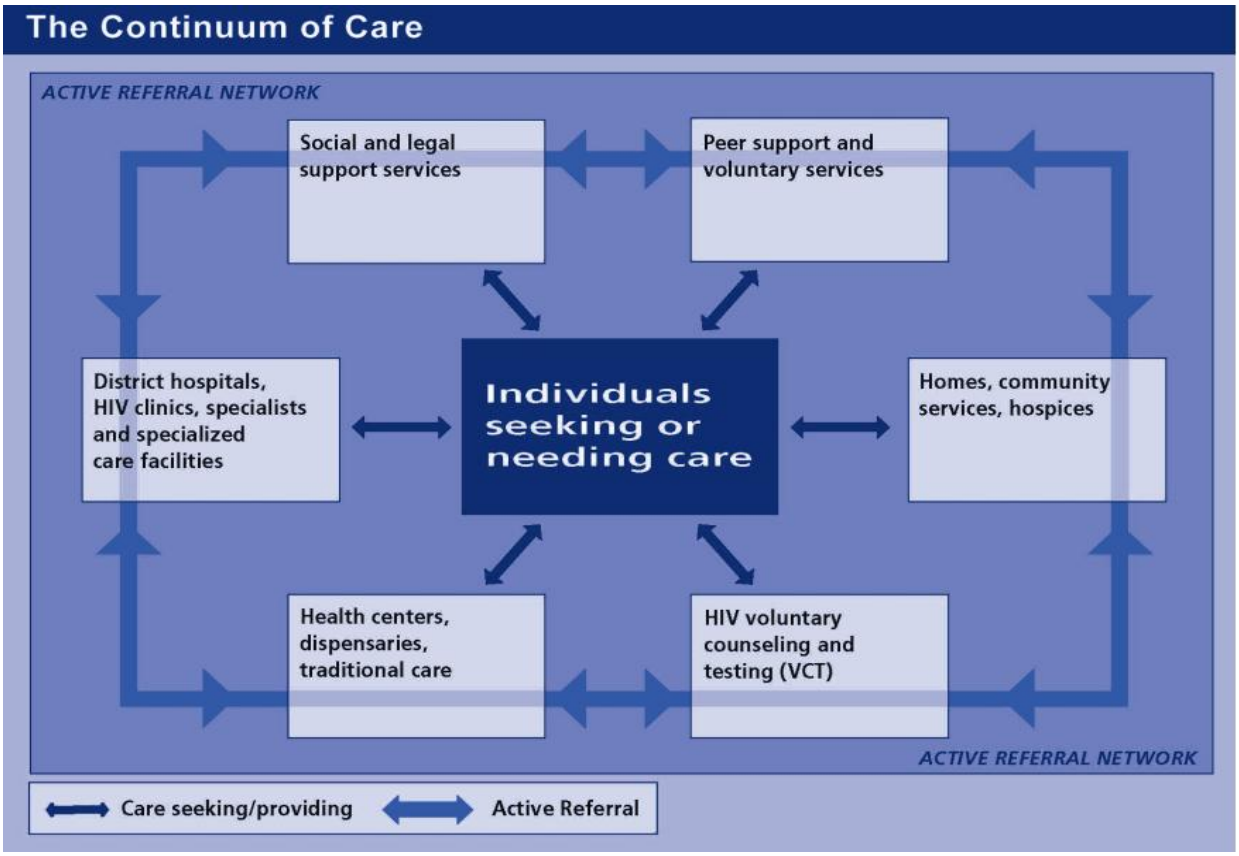
According to the Integrated Biological and Behavioral Surveillance Survey 2010, the HIV prevalence rate in the Nigerian armed forces was 2.5%. Risk factors in the military population include a social climate that is relatively permissive of risky sexual behaviors, deployment demanding frequent travel, during which some soldiers engage in unprotected sex with sex workers or strangers; and injuries and illnesses that risk exposure through blood transfusions.[18] The Nigerian Ministry of Defence (NMOD) has 4 components: Army, Navy, Air Force, and civilian NMOD employees. The NMOD medical facilities serve active-duty members, their families, retired members, and civilians in the surrounding communities. Total catchments of patients are estimated at 1.2 million individuals (NMOD, unpublished data). During fiscal year 2010, the collaboration between NMOD and the US Department of Defense HIV Program in Nigeria (DODHPN) continued PMTCT activities at all 20 military facilities supported by the program. A total of 7,256 pregnant women received CT during this reporting period. In addition, 440 of the HIV-positive pregnant women received ARVs to reduce risk of mother-to- child transmission. [19]

Referral is a process by which immediate client needs for prevention, care, treatment, and supportive services are assessed and prioritized and clients are provided with assistance in identifying and accessing services, where as linkage is the formal process to ensure that the client

has received the services to which he/she was referred and that the client's needs have been addressed, it is also viewed as the formal structures or conduits between institutions or organizations through which the process of referral occurs.[20,21] Referral can also be examined at three levels of interfaces between clients and the health care system: the community, the client/provider and the institution.[21] The process of developing and maintaining a comprehensive referral system is no small undertaking, requiring numerous resources including, but not limited to, staff, time, supplies, and technology.[20]

In country-level plans often mention the concept of referral – linkages , however, HIV programs typically lack well-defined guidelines that specify how referrals are supposed to be made among health facilities and between the health system and community-based organizations or individuals that serve people living with HIV/AIDS. Challenges may arise from the community, the client/provider and/or the institution component of the referral system. For example, findings from a study in Ethiopia revealed that challenges with referral linkage in their HIV programme included; stigma and discrimination, poor client provider relationship, shortage of trained health workers, lack of adequate care and support, poor post-test counseling, misconceptions associated with ARV drugs, lack of standardized inter and intra facility referral and feedback mechanisms were thought to contribute to the poor service linkage. Specific recommendations were then made based on the findings of the national assessment which included; address stigma and discrimination, improve human resource capacity, improve access to home and community based care and support services, standardize referral formats and tools, improve the overall quality of care , service integration, generate more evidence on service linkage.[20,22] This underscores the importance of timely assessment of referral linkages that exist within health systems, so as to identify the weakest links and institute timely measures to address them.

The national guideline for HIV and AIDS treatment and care in adolescents and adults recommends that clients should be referred for services that are responsive to their priority needs and appropriate to their culture, language, spirituality, gender, sexual orientation, age, and developmental level. Typical referral needs for PLHA include, clinical services, partner counseling and referral services, reproductive health services, prevention and treatment of drug and alcohol abuse, mental health services, social and legal support services, prevention with positives, and other HIV prevention and support services.[23] Nigerian national HIV and AIDS programme, adopts the Hub and Spoke model of ART service delivery, which describes the relationship between different levels of the health care delivery system in the delivery of HIV/AIDS services especially ART. The hubs are usually tertiary health centres which serve as domicile points for specialized services such as laboratory (discordant screening confirmation, hepatitis B and C screening, viral load testing, DNA PCR etc) and care and treatment associated with complications of HIV infection. In the model, the centres will continue to provide these specialized services but will have established linkages with several secondary facilities within a network where patients and or laboratory samples can be referred to for specialized testing and services when the indications for such arise. Whereas the secondary health facilities are spokes to the tertiary facilities referring clients to them, but also serve as hubs to the primary health facilities. Referrals could however take place from a primary health care centre to a tertiary health facility. Emphasis is however placed on the need for a two way referral system, where feedback is key. [23]



Source: National Guideline on Palliative Care, Federal Ministry of Health (2006)

Figure 1 : The continuum of care

In the above figure, illustrating continuum of care in the HIV clinic setting, it is worthy of note that active referral of clients and patients could occur from homes, community services to district hospitals, HIV clinics, seeking or in need of care. This is possible because, it is common to find HIV positive persons to seek care at home first as an alternative to proper hospital care, and would only present at a health facility when symptoms have become life threatening The referral linkage in the Nigeria military PMTCT programme is done in line with the national guideline which states that " All HIV infected women should be referred to the adult ART clinic after postnatal visit".[4,20] At the adult ART clinic the decision to place the client either on treatment or care and support is primarily based on her CD4 counts and WHO Staging; ART is

initiated in HIV positive pregnant women based on; CD4 Count ≤ 350 irrespective of WHO clinical staging and WHO AIDS Stages III & IV disease, irrespective of CD4 cell count. The latest available WHO guidelines has set ART initiation CD4 count of 500 cells/mm^3 for adults, and all pregnant and breastfeeding women with HIV should initiate triple ARVs (ART), which should be maintained at least for the duration of mother-to-child transmission risk. Women meeting treatment eligibility criteria should continue lifelong ART (strong recommendation, moderate-quality evidence) , however the Nigeria programme is yet to adopt this.[24] If an ART clinic is located on the same premises, a member of the site team escorts the pregnant woman to the ART clinic and hands over her referral documentation to the person registering patients. If no onsite ART clinic women are out referred to the nearest ART clinic managed by the Nigeria military, these women are given a referral form to take with them. Clients with CD4 count > 350 cells/mm^3 are then referred to a care and support group; these support groups meet on monthly bases.

All the women who test HIV positive at the Nigeria military PMTCT sites are also given the preferred regimen of Zidovudine +Lamivudine+(Nevirapine or Efavirez*) , while avoiding Efavirez for women in their first trimester and are instructed when to take it, blood samples are also sent to laboratory for CD4 counts . These facilities follow the WHO Option B which provides prophylaxis for HIV positive women during pregnancy and delivery and then reevaluate their CD4 eligibility to either continue ARVs for their own health or stop ARVs because their CD4 count of >350 cells/mm^3. These women were also referred to TB screening points within the clinics where they accessed PMTCT. These women are instructed to return to the ANC clinic on a given date (usually after 2 weeks) for their CD4 count result. When the women return to the PMTCT clinics for their CD4 count result, their names and CD4 results are

captured in a CD4 results book. If the CD4 count is 350 cells/mm^3 or less, the women are then referred to the ART clinic. A note that the women have been referred to ART is made against their names in the PMTCT register. The specific ART clinic a woman can be referred to is determined by proximity of the women's home to the ART facility. Women typically access ANC at clinics close to where they live, thus the ART clinics to which they would be referred are likely to be close to where they accessed ANC.

1.2. Problem Statement

A disproportionate global burden of HIV/AIDS (about 60%) is borne by women and their children, who have continued to show high rates of new infections, and of HIV-related illnesses and deaths[4]. A review of the PMTCT and ART services data of the Nigerian military health facilities suggested a weak linkage of HIV positive mothers between the PMTCT services and the adult ART services for their own health. This weak PMTCT-ART clinic linkage is a major problem present in over 60% of both the 14 PMTCT only sites and the 23 comprehensive sites of the HIV program of the Nigerian Military. The HIV programme in the Nigerian military has adopted the national guidelines and targets (2010), [4] which states one of the targets as; at least 90% of HIV positive pregnant women requiring ART for their own health receive lifelong ART by 2015. However, this PMTCT-ARV operational linkage in military health facilities is weak, needing strengthening. The weak PMTCT-ART linkage of HIV positive pregnant women who attended antenatal clinics and delivered their babies between 2010 and 2012 was identified in over 60% of the military health facilities offering these services.

This weak PMTCT-ART linkage has resulted in a proportion of HIV positive women been lost to follow up after delivery of their babies. This may be associated with progression to chronic stages (AIDS) and even death. Hence, the HIV programme of the Nigerian military is hampering

the achievement of the national PMTCT target of reaching at least 90% of HIV positive women requiring ART for their own health, by 2015. Factors that have influenced the problem include; in most of the facilities, not all the HIV pregnant women attending antenatal clinic, return to the facility to deliver their babies, some of the facilities offering only PMTCT services refer the clients to the closest comprehensive site offering adult antiretroviral treatment and care, who end up not presenting at the referral facility.

In the past, the strategic information unit of the programme has given feedbacks to the sites that are most affected by weak linkages, however, there remain a big proportion of women who do not reach the referral clinics with even those who are in the same comprehensive centre failing to go to the ART clinics. Information from routine data is insufficient to make conclusion on why this linkage problem persists and the possible effective strategies to solving the problem.

1.3. Justification of the Study

The Nigerian military health facilities provide PMTCT services in line with national PMTCT policy guidelines. According to this policy, women who test HIV positive should when eligible be referred to ART treatment clinic and should be given information on and be referred to support services and positive living support groups.[4] In keeping with these guidelines, HIV positive women are referred to ART or care and support services depending on their CD4 count and clinical presentation. However, it is not known what proportion of these women access the services to which they are referred, more so if the service to which they are referred is not available on the same premises as the ANC clinic. Anecdotal evidence from monthly summary data submitted by the facilities has shown weak referral linkages between the PMTCT and adult ARV services offered at these military health facilities. The strategic information unit has provided regular feedback to the health workers at these facilities and several attempts have been

made to improve and correct the impediments militating against effective referral linkages. These attempts have not produced significant improvement, hence the need for a more scientific approach to addressing this challenge.

In view of the above, further research is needed, to identify the likely causes of the weak linkage and provide recommendations to address the problem. The study will provide information on the proportion of HIV positive pregnant women who attended antenatal clinic and delivered at the heath facility and were effectively linked to adult ART care from the PMTCT clinic, for her own health and that of the baby, the information on the likely causes of the weak linkage and how it can be strengthened. The information gathered from this study will help in defining strategies for improving the PMTCT-ARV service linkage in the HIV programme of the Nigerian military, which will ultimately, improves effectiveness of the programme in contributing to achieving national objectives.

1.4. Research Questions

1. What is the proportion of HIV positive pregnant women who were referred from the PMTCT clinic to adult ART clinic in the Nigerian Military health facilities?
2. What is the proportion of the referred HIV positive pregnant women who actually reached the ART clinic in these facilities?
3. What are the factors that are contributing to the PMTCT-ART clinic linkage in Nigerian Military health facilities?
4. What is the uptake rate of antiretroviral treatment by HIV positive women for their own health, when referred from the PMTCT clinic to adult ART clinic in these facilities?

1.5. General and Specific Objectives

1.5.1. General Objective:

To assess the linkage between Prevention- of- Mother-To–Child-Transmission of HIV and adult ART services in Nigerian Military health facilities

1.5.2. Specific Objectives:

1. To determine the proportion of women accessing PMTCT who were referred to the adult ART clinic in selected Nigerian military health facilities between January 2009 to December, 2013
2. To determine the proportion of referred HIV positive mothers who reached and accessed ART services in the facilities between January 2009 to December, 2013
3. To identify the factors associated with PMTCT-ART service linkage in the identified health facilities
4. To determine the rate of uptake of antiretroviral treatment by HIV positive women, when referred from the PMTCT clinic to adult ART clinic in these facilities

CHAPTER TWO - LITERATURE REVIEW

2.1. Introduction

Globally, high-income, developed countries, have recorded near-universal coverage for antiretroviral medicines for pregnant women for both prophylaxis and treatment for her own disease.[25] The 2012, World AIDS day report by UNAIDS revealed that, 92% of the world's HIV-positive pregnant women live in sub-Saharan Africa, 59% of them received antiretroviral therapy or prophylaxis during pregnancy and delivery in 2011. Ensuring a mother living with HIV has access to HIV treatment not only has benefits for her own health, but also for the health of her family.[25,26]Studies indicate that parental HIV-positive status is associated with a 20 - 40% increase in the risk of mortality in children under - 5 regardless of their HIV status. Consequently, mothers who stay alive and healthy are likely have an indirect decreasing effect on the risk of death among their children(especially under- 5 mortality) ,regardless of the child's HIV status.[25,27,28] Early treatment with triple ARVs for HIV positive mothers may decrease HIV related morbidity due opportunistic infections such as tuberculosis.[29]Adherence to ARVs among HIV positive mothers is likely to increase maternal life expectancy.[30] Increasing maternal life years also reduce the number of orphans needing support.[31]

The annual cost of providing care to a child orphaned due to HIV/AIDS is estimated to be more than $200 per year; research shows this to be $45 per maternal life year saved.[31] In a project implemented by UNICEF in collaboration with Clinton Foundation, and Business Leaders Council, recently reported estimates of pregnancy- related deaths among women living with HIV to have declined from 46,000 in 2005 to an estimated 37,000 in 2010. Hence, efforts need to be intensified to ensure that pregnant women tested for HIV during antenatal care are also tested for eligibility for antiretroviral therapy and are effectively referred and linked to adult ART

services.[32] Pregnant women who have reached the stage where antiretroviral treatment is required should have access to this treatment during pregnancy, with trained providers and referral for ongoing care.[33] This literature review will consider, referral rate between PMTCT and Adult ART services, the proportion of women who reached the referral service point or centre, factors associated with PMTCT-ART service linkage, and the uptake of ART service by mothers referred from PMTCT clinics, from previous studies, and summarize the key findings arising from them.

2.2. PMTCT- ART clinic referral rates

The process of referral in a health facility setting is conventionally initiated by the service providers, who assesses the need for referral and which centres can provide the needed services. The rapidly increasing availability of antiretroviral therapy is making full care and treatment programmes a reality to many families around the world but linkages between PMTCT and treatment programmes need to be strengthened, including CD4 count monitoring and follow-up mechanisms between different services. In a study, conducted in 71 countries it was found that among 31 countries that had data, only 28% of women who received an antiretroviral for PMTCT also reported receiving antiretroviral treatment for their own health.[34] The referral rates of HIV positive mothers between PMTCT-ART clinics have been assessed by previous studies revealed a wide range of values, each depending on the prevailing factors peculiar to the study sites. The process of identification of women eligible for treatment and ensuring access to ART services is challenging.[35] From a large clinical trial (the PEPI-Malawi study, 2004–09), the proportion of women counseled and referred for HAART initiation increased from 89% in July 2005 to 100% in 2009.[35] In another Blantrye, Malawi study, it was found that HIV-positive pregnant women were significantly less likely to be referred directly for ART initiation, with

only 24(19.8%) of the 121 pregnant women recruited in the study were referred directly for ART initiation .[36]

In an intervention study carried out in Zambia, 9723 pregnant women were counseled about PMTCT, 4630 (45%) were tested for HIV and received their results, of these, 890(19.2%) pregnant tested positive for HIV, 549(51.7%) sero-positive pregnant women were enrolled or referred to clinical care beyond PMTCT. One year later, after interventions such as, expansion of access; provision of same day routine HIV testing with opt-out strategy; building of human resource capacity; improving of facility capacity; fostering of understanding and reduce stigma; increasing of male involvement; ensuring confidentiality; conducting postnatal follow-up of mother-baby pairs; and improving commodity management, led to increasing the number of sero-positive pregnant women who were enrolled or referred to clinical care beyond PMTCT to 91.5%.[37]

A cohort study in Mwanza, Tanzania which enrolled 403 participants, during enrollment of the 240 women who were tested during pregnancy, at antenatal PMTCT services, 123 (51.3%) had received a referral to an ART clinic for care and treatment, prior to delivery. 70(22.6%) participants were previously-untested HIV-positive women who were tested in labour, at the maternity ward. No referrals to the ART clinic were given by maternity ward staff to HIV-positive women who had not yet attended HIV care and treatment services, including those who were identified as HIV-positive for the first time in the maternity ward. Out of the 403 participants,93 participants already knew their status before the index pregnancy, hence these women were excluded from the study.[38] An intervention study in Zambia in which interventions to improve PMTCT uptake were introduced into 38 sites providing PMTCT services in Zambia in July 2005,revealed 967(91.5%) out of the 1057 sero- positive pregnant women were referred

and enrolled to Adult ART clinical care beyond PMTCT.[37]A cross-sectional study In a Zimbabwean study which examined the factors associated with access to HIV care and treatment in a prevention of mother to child transmission programme in urban Zimbabwe, Of the 246 participants referred, 45 (19%) women were excluded from the study because they were participating in a US National Institutes of Health-funded clinical trial, which facilitated transportation and registration of clients at the ART programme. Of the 201 eligible participants, 46 (23%) were lost to follow up, while eight (4%) had deceased by the time of the interviews. Of the 46 clients who were lost to follow up, 41 (20%) had moved out of the study area, while five (10%) had relocated to other countries in the region. Of the 147 participants who were interviewed and eligible for inclusion in this survey, 95 (65%) had registered with the ART programme, while 52 (35%) had not registered. However, on review of the registration book at the antenatal clinic, documentation of the referral between the PMTCT programme and the ART clinic was noted in 23 (16%) of cases.[39]

The Nigeria National guidelines for Prevention of mother to child transmission of HIV recommends a 100% referral rate of HIV infected women after postnatal visit to the adult ART clinic for treatment if they are eligible or for care and support services for those with CD4 count of less than 350.[4] In Nigeria, however, there is paucity of published information on referral rates between PMTCT and ART services in country.

2.3. Rates of PMTCT- ART service linkage

The ultimate goal of referral of PMTCT clients to ART services delivery points is for linkage to ART care and treatment. However HIV-positive pregnant women access ART through referral from antenatal care (ANC) settings or by integration of ART and ANC clinics; of note is the fact that eligible women in all programme settings are frequently lost within the PMTCT

cascade.[11,12,40–43].In a South African study, which conducted a secondary data review, defined linkage to ART care; as initiating ART within 6 months of HIV diagnosis in individuals with a CD4 count <200 cells/mm^3 taken within 6 months of HIV diagnosis. Having a repeat CD4 count was defined as having had a repeated CD4 count in individuals not yet eligible for ART (CD4 count 200 cells/ml) and tested before 2009. This study revealed that 81.3% of individuals attending for a CD4 count measurement were tested within 6 months of HIV diagnosis through ANC. However, the study did not ascertain if individuals actually received their CD4 counts. Linkage to ART care was found to be highest among individuals tested through ANC services (72.2%)[44]

In another Malawian study, which was an operational research, showed that majority of women were lost between ANC and ART services provided in different facilities. Of the 942 HIV-infected pregnant women were referred to a referral centre for HIV care, 612 (65%) were eligible for ART based on CD4 count. Of these,367(60%) women reached the ART clinic.[45]

In the Mwanza, Tanzania study which revealed that of the 123 clients referred, 71 (57.7%) had attended ART clinic prior to delivery of whom only 36 (50.7%) could confirm their attendance by providing a clinic card. This study also revealed that up to 42.2% of HIV- positive pregnant women tested through the PMTCT services who had received referral to an HIV clinic did not attend HIV clinic. By the end of four weeks, using data on the attrition along the patient cascade for HIV-positive pregnant women who attended the four month follow-up visit, illustrated by the Piot-Fransen model, revealed that of the 244 participants who were seen at the ART clinic78 (32.0%) participants were referred from PMTCT clinic, attended the ART clinic , and were assessed for their eligibility for HAART [38] In Kinshasa, only 35 % of HIV-positive pregnant

women attended the HIV/ART clinic after referral with a median time of 4.5 months after HIV diagnosis[46]

In an intervention study in Mozambique, which described integration as including; placing ART services in existing units; retraining existing workers; strengthening laboratories, testing, and referral linkages; expanding testing in TB wards; integrating HIV and antenatal services; and improving district-level management .The study gathered data from two sets of sites over the same time period. At the large vertical sites, HIV-positive women were referred from other health units with ANC services, while in integrated sites; patients were referred from ANC services within the same health unit. The study revealed that loss to follow up from referrals of HIV-positive women from PMTCT services to ART services was reduced from 70% in vertical sites to 25% at integrated sites, based on analysis of routine data. Nearly all integrated sites across both provinces demonstrate similar results.[47]

Another cross-sectional survey of women who had participated in a PMTCT research study and were referred to care programs was conducted, in Nairobi, Kenya. Of the 116 women reporting on access to health care, 74% reported that they had been referred for health care services at an HIV care program.[48] In Nigeria, however, there is paucity of published information on rates of service linkage between PMTCT and ART services in country.

2.4. Factors influencing PMTCT- ART service linkage

2.4.1. Health system related factors to PMTCT – ART service linkage

Referral delay from the ANC facility to the ART facility might be caused by limited booking capacity for new referrals at the ART facility and requires investigation.[49]In a qualitative study conducted in South Africa, in-depth interviews identified considerable weaknesses within

operational HIV service delivery. These manifested as missed opportunities for HIV testing in antenatal care due to shortages of test kits; insufficient staff assigned to HIV services; late payment of lay counsellors, with consequent absenteeism; and delayed transcription of CD4 cell count results into patient files (required for ART initiation), data and information systems for monitoring in the three peri-urban facilities were markedly inadequate.[50]

2.4.2. Provider -related factors to PMTCT – ART service linkage

As the interface between the health system and the client, health workers played a critical role in influencing women's care-seeking decisions. A study in Uganda, revealed negative provider–client interactions impeded uptake of services. This study reported very negative interactions with programme staff, such as rude comments and unacceptable behaviour, such as shouting as factors affecting care seeking behavior of HIV positive mothers.[51] In a study in Malawi, health workers' exclusive focus on the biomedical aspects of HIV and failed to address social factors that might affect care-seeking, such as poverty and food insecurity, and these were highlighted as short- comings on the part of the provider. [11]In the same study, although women described accessing HIV-related services for their own health, providers sometimes failed to refer asymptomatic women to the HIV clinic and focused their attention on their infants' health.[11] The lack of sensitization for providers and clients on the value of timely HAART initiation was also been noted as contributing to patient attrition.[11] The power of inequality reflected between health provider and client, in which, women often do not question and wholly accepting providers' attitudes towards their health can often affect their experiences while accessing health services.[11] In a Kenyan cross-sectional assessment which set out to determine the relative roles of stigma versus health systems in non-uptake of prevention of mother to child transmission (PMTCT) of HIV-1 interventions revealed that health system factors contributed to about 60% of non-testing

among mothers who attended antenatal clinics and to missed opportunities in offering antiretroviral and utilization of facility delivery.[52]

2.4.3. Individual - related factors to PMTCT – ART service linkage

Women's fears regarding confidentiality, transport costs to access services, general dislike of health facilities, not feeling ready and low knowledge of HIV and HAART have also been cited as barriers to access. [51]The perceived stigma of being seen attending the clinic, being given food support that was only given to people with HIV and being visited at home contributed to the visibility of infection and potential involuntary disclosure, and therefore constituted reasons for non-attendance at services in a study in Malawi.[11] Non-disclosure of HIV status to a woman's sexual partner contributed towards non-enrolment in HIV-related services in one study.[51] The only study to examine the HIV status of women's sexual partners found no association with women's uptake of HIV-related services.[11]The qualitative study in South Africa revealed that individual factors undermining access encompassed psychosocial concerns, such as fear of a positive test result or a partner's reaction; and stigma.[50]

A UNICEF study identified low availability of ART at MNCH sites results in particularly poor access to ART for the most vulnerable women and children, as many would have to travel long distances from their homes to access ART at higher level facilities. Even when women are able to reach these facilities, poor coordination with respect to the timing of service delivery can be a bottleneck to access. While ART in pregnant women should be initiated as soon as possible to minimize the risks of infant infections and maternal mortality, ART clinics are often not organized to give priority to pregnant women. Delays related to scheduling, laboratory testing, or adherence counseling often preclude ART from starting until later in gestation or after birth.[53]In a systemic review conducted for sub Saharan Africa, several factors were identified by various

studies as reasons for loss to follow up in PMTCT in sub- Saharan Africa. These included health facility factors, fear of HIV-1 test, stigma and discrimination, home deliveries, and socioeconomic factors.[54] In a Zimbabwean study, which considered the factors that are associated with accessing ART by referred PMTCT clients, showed that 35% of the women did not access HIV care and treatment. However, understanding the referral process was found to be significantly associated with access to HIV care and treatment with those participants who understood the referral process being three times more likely to access HIV care and treatment than those who did not understand the referral process. Participants who were members of a HIV support group were found to be twice as likely to access HIV care and treatment as those who did not belong to any HIV support group. Multivariate analysis revealed that access to HIV care and treatment were found to be significantly associated with participants who understood the referral process and those enrolled in an HIV support group. Those living with a male partner were 60% less likely to access care and treatment.[39]

Where as in a Tanzanian study the revealed that factors associated with default on referral from PMTCT to ART services among referred PMTCT clients; included not understanding why it was important to attend an HIV clinic soon after diagnosis, too ill to attend, afraid to disclose their HIV status, wanting to wait until after delivery, distance to the HIV clinic, being informed services were not available when they attended the HIV clinic , lack of time, did not believe the HIV results, and not feeling it was necessary to attend HIV clinic services because she felt well.[38]

2.5. ART uptake rates by HIV positive mothers

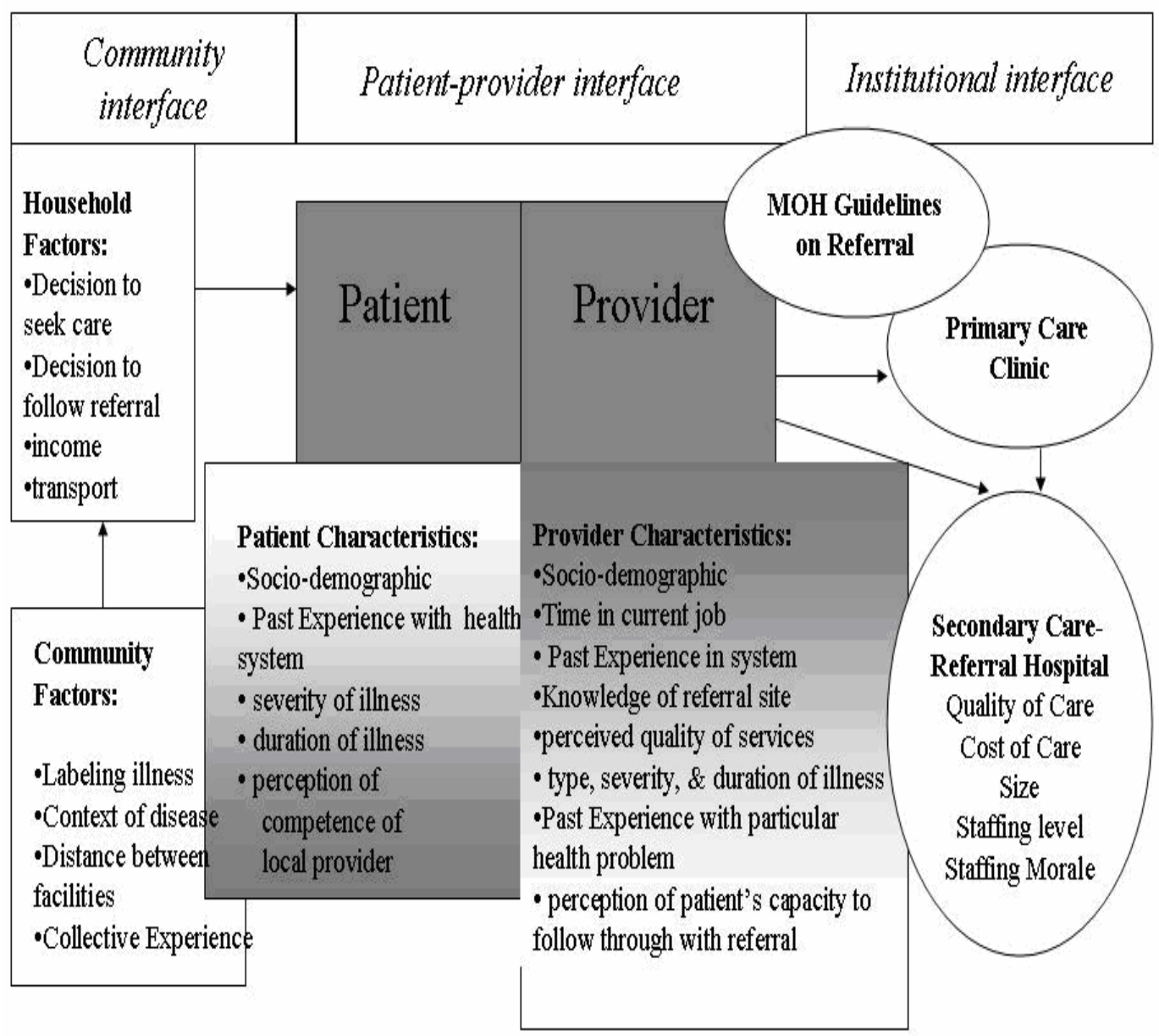
In a Soweto study, found that certain health system factors which could influence ART uptake included poor case management, drug stock outs and impractical dispensing procedures.[55]All these factors erode confidence of potential users and decrease the likelihood of the services being used. These health system factors coupled with personal factors and possibly low uptake and client attrition that is observed in ART programmes.[56]Though much has been written about what constrains access of ART services, there is limited documentation on HIV positive pregnant women's access to other services which such as treatment of opportunist infections, psychosocial support and nutrition counseling. Furthermore, there is limited documentation on the linkages between PMTCT and services to which women testing HIV positive at ANC clinics are referred, or the extent to which accessing of these services is influenced by the afore mentioned factors.

In yet another Malawian study, which evaluated the impact of an intervention on the continuum of care for HIV positive pregnant women, records from 1688 pregnant women living with HIV were analyzed .Of the total population of these women, 76.3% were newly diagnosed with HIV and as at the time of enrolment, 19.7% of the total population were already on ART. However, of the 1355 (80.3%) who were not on ART at time of enrollment, 98% had a CD4 test, and 93.6% of these mothers received these results. This compares to 22.5% who received results before the intervention. Based on CD4 count, 36.8% of mothers met criteria for ART eligibility. Of these, 72.8% were successfully initiated on ART.[57]

In a retrospective cohort study carried out in Cape town, South Africa of 490 HIV-infected pregnant women referred to initiate treatment at an urban ART clinic, a total of 382 women initiated ART before delivery (78%); ART initiation before delivery was associated with earlier gestational age at presentation to the ART service.[13]

Available data shows varying degrees of success in health systems referrals and levels of collaboration between facilities. Given these gaps, this study set out to determine the level of uptake of ART, care and support services, thereby assessing the referral linkages between PMTCT and ART services.

2.6. Conceptual Framework



Source: Adapted from Final Report on Linkages and Referrals within AIDS Care and Treatment National Service Delivery Systems, Swaziland, September 2008.

Figure 2 : Framework of referral in a health care system

CHAPTER THREE – METHODOLOGY

3.1. Study Area

The study was carried out in two selected military health facilities. The selected military health facilities include; 44 Nigeria Army Reference Hospital Kaduna as comprehensive site and 1 Division hospital Kaduna as the satellite site.

The two facilities are both located within Kaduna metropolis of Kaduna state, in the Northwest geopolitical zone of the country. However, worthy of note is the fact that the clients that assess services in these facilities comprise of a mixture of persons from across Nigeria, as this is typical of any military community.

The prevention component of the HIV/AIDS programme in the Nigeria Armed Forces has a strong PMTCT component which is being implemented in all the 23 comprehensive sites and the 15 satellite sites evenly distributed across the nation. The PMTCT services are integrated into existing ANC services in the 38 health facilities. The Nigeria Armed Forces; including the Army, Navy, and Air force have a nationwide spread of health facilities providing healthcare services to the personnel of the Armed Forces, their families and the neighboring civil populace. These health facilities, in addition to the routine medical services they provide, also render ANC services, along with HIV/AIDS prevention, treatment, care, and support. The available epidemiological data had shown that personnel of uniformed services are at a higher than average risk of HIV infection acquisition and are classified in the Most-At-Risk- Population group. The HIV/AIDS programme is a partnership between the Nigerian Ministry of Defence and United States Department of Defence (NMOD-USDOD) which, was set up with funding from PEPFAR and counterpart funding from the Federal Government following an initiative

from the office of the Honourable Minister of State for Defence in 2004. The programme eventually commenced in 2005.

The scope of the PMTCT services was deepened and expanded, alongside the capacity development of service providers over the years. These NMOD-DOD sites are centrally coordinated in Abuja, by the Emergency Plan Implementation Committee (EPIC) liaison office. The Strategic information unit of EPIC collates all the activity reports on a monthly basis from all the sites. The Nigeria Ministry of Defence, HIV/AIDS programme facilitates the provision of PMTCT services at 38 military health facilities across Nigeria, of these facilities 23 are comprehensive sites providing on-site ART services. The remaining 15 facilities are satellite sites providing only PMTCT services in 13 facilities and only HCT in 2 facilities, which do not have on-site ART services hence, refer clients who need to begin ART to one of the 23 facilities which do. There are however, of the 23 comprehensive sites there are eight (8) which do not have satellite sites attached to them. The categorization of facilities into comprehensive and satellite sites is purely based on the services available and rendered to clients at these facilities. A typical comprehensive site, offers the following services; HIV prevention package, laboratory back up, HIV care, HIV treatment, PMTCT, Tuberculosis diagnosis and treatment, HCT, monitoring and evaluation. While a satellite site is one that offers PMTCT and HCT including Tuberculosis diagnosis and treatment. For purposes of this study, facilities which offer on-site ART services are referred to as comprehensive sites and those which do not provide ART services are referred to as satellite sites.

Referral of clients from a satellite site to a specific comprehensive site for ART services is guided by proximity between the two types of facilities and ease of access to the comprehensive site for the client. The Nigeria Ministry of Defence, HIV/AIDS programme has assigned specific

satellite sites to comprehensive sites with the satellite sites usually falling within the comprehensive sites' catchment area. The sampling frame will therefore comprise of: all the comprehensive and satellite sites where the Nigeria Ministry of Defence, HIV/AIDS programme supports provision of PMTCT, the records of pregnant women who had accepted to test for HIV at these facilities and staff involved in the provision of PMTCT, ART, care and support services. The combined patient load for ANC services is about 40 clients/ day and 120 clients/week for HIV related services at the two facilities in Kaduna state. The comprehensive list of NMOD-DOD sites (sampling frame) is in the appendices.

3.2. Study Design

A cross sectional descriptive study was employed.

3.3. Study Population

The study population comprised of pregnant women who received a positive HIV test result and accessed PMTCT services for their pregnancy, at clinics over the period January 2009 to December, 2013.The study population also included staff members at the sampled clinics who are involved in the provision of PMTCT, ART and VCT services including staff working in the health record units of the selected facilities. Also in addition, hospital records of PMTCT clients who assessed services and were referred for ART services for the period under review were part of the study population.

3.3.1. Inclusion Criteria

Patient records review inclusion criteria:

I. Records of all pregnant women who attended ANC visits at the sampled facilities for their pregnancy and underwent the PMTCT process within the study period, as shown in the PMTCT clinic register;

II. Records of all women who accessed the ART services for the time period under review, as shown in the ART clinic register.

Staff at the PMTCT and ART service provision points were approached by the principal researcher to take part in focused group discussions. Selection was based on their level of involvement in the provision of PMTCT and ART services. Discussion notes were captured by the note taker and principal researcher as the discussions went on. Also, a tape recorder was used to record all discussion sessions and subsequently transcribed into notes by the principal researcher.

Focus group discussion inclusion criteria:

All staff involved in day to day provision of PMTCT and ART services, who had been working in that area for more than six months and willing to participate.

HIV positive mothers who were referred from PMTCT clinics to ART clinics, after delivery of their babies and did not present at the referral facility were tracked and contacted through phone calls, with the help of the facility staff, to take part in default study and telephone interviews were conducted . While those mothers who have accessed ART, care and support services at the referral facility were also tracked and contacted through phone calls, with the help of the facility staff, to take part in study and telephone interviews were conducted. Participation was entirely

voluntary and they were informed that they could opt out of the study at any time without any negative consequences. In this study, access to ART, care and support services is defined as successful completion of registration of the referred PMTCT client at the ART clinic.

Referral linkage study inclusion criteria:

All HIV positive mothers on referral for more than six (6) months following initiation of referral process, this is to give enough time to ascertain those who have defaulted on referral.

3.3.2. Exclusion Criteria

Patient records review exclusion criteria:

I. Records of women who were certified to have died at the point of data collection
II. Records of women whose CD4 count results were not written down in the PMTCT registers.

Focus group discussion exclusion criteria:

I. Clinic staff who do not provide core services such as the cleaners
II. Clinic staff who have been employed at the facilities less than three months.

Referral linkage study exclusion criteria:

All HIV positive mothers on referral greater than six (6) months following initiation of referral process who were tracked on phone and are not willing to participate in the study.

3.4. Sample Size Determination

The minimum sample size for the referral linkage study was determined by using the statistical formula of Fisher for calculating sample size:

$$n = \frac{Z_{\alpha}^{2} pq}{d^{2}}$$ [58]

Where n = minimum sample size in the 2 groups

Z_{α} is the standard normal deviate corresponding to a 2 sided level of significance of 5% = 1.96

p is the proportion of outcome of interest from previous study(women who defaulted on referral in a health facility in Tanzania) = 68.0%[38]

q = 1-p, is the proportion of women who were linked to ART services in a referral health facility in Tanzania = 32.0%[38]

d is the desired level of precision (usually at 5% for single proportions);

Calculated sample size = 334; However with consideration of possible non response rate of 10%, the minimum sample size = 371.5 approximated to 372.

3.5. Sampling technique

i. The 44 NARH Kaduna which is one of the comprehensive sites in Nigerian Military HIV programme was selected.

ii. Then a list of the 6 satellite sites attached to the selected comprehensive site (44NARH Kaduna) was complied.

iii. One satellite site was then randomly selected from the list by balloting.

iv. After this procedure has been carried out, the facilities selected, include; 44 Nigeria Army Reference Hospital Kaduna as comprehensive site, and 1 Division hospital Kaduna as the satellite site.

v. PMTCT registers at the sampled facilities were reviewed for the period January 2009 to December, 2013. At the selected facilities the study participants were selected from the PMTCT registers using systematic random sampling, by first dividing the number of client case folders in the sampling frame of 1,860 by the estimated sample size of 372 to determined the k(sampling unit),which was equal to 5, then the first participant was selected using simple random method via table of random numbers. Then every 5^{th} client case folder was selected until the desired sample size is attained.

vi. These selected participants were traced to the ART register which was reviewed for a longer period of time to allow for possible delays in accessing the service by HIV positive mothers. The women who are found on the ART register, had thier records extracted into a review tool.

vii. For the women who were earlier referred to the ART clinic and thier records were not found on the ART register were tagged to have defaulted on referral, and were also visited at thier homes for interview using the same structured questionnaire.

viii. Three sessions of focus group discussions, one among the doctors at ANC/PMTCT clinic, one among nurses at ANC/PMTCT and the last among medical, nursing and health record staff at the ART clinic was conducted, each session had at least 8 service

providers. Focus group discussants were purposively sampled based on inclusion and exclusion criteria.

3.6. Study Instruments

The study was conducted using four (4) instruments namely;

A. Clients record review tool for the secondary data review each at the ANC/PMTCT clinic records.

B. Clients record review tool for the secondary data review at the Adult ART clinic records in the PMTCT clients folders.

C. A structured questionnaire for all respondents (including both those who honored the referral and those who defaulted)

D. A focus group discussion guide for collection of qualitative data from three groups of discussants (doctors at ANC, nurse at ANC, doctors, records staff, and counselors at adult ART clinic).

3.7. Data Collection Methods

3.7.1. Data Source

Data was collected from routine statistics maintained at PMTCT service points (PMTCT registers) at ANC clinics using a record review tool, as well as from the patient register maintained at the ART clinic using a record review tool. Data from the focused group discussion was collected from recorded discussion notes of responses provided by the ANC, PMTCT and ART service providers who were selected as discussants, and using the FGD guide. Whereas

data from the referral linkage study, was gathered using a structured questionnaire administered to the women who were referred from PMTCT to ART clinics during the period under review.

3.7.2. Procedure for Data Collection

Five research assistants were recruited and trained for the data extraction from routine PMTCT and ART data. The purpose of the training was to standardize the data extracted and to reduce bias. The researcher directly supervised the data collectors for consistency and quality assurance of data collected.ANC and PMTCT records was reviewed to extract information on number of women attending ANC, number of women HIV positive, number of women on PMTCT, number of women who delivered in the facility, number of women on PMTCT prophylaxis.

The PMTCT registers was reviewed for the period January 2009 to December 2013. The PMTCT register served as the sampling frame from which the study participants were selected using systematic random sampling method to attain the estimated sample size. The review retrieved information on HIV testing, the result of the test, CD4 count and status of referral for those women whose CD4 count was 350 or less. According to current national guidelines on treatment of HIV, all HIV positive patients should be referred to an ART centre for initiation of treatment when their CD4 count is 350 or less, or when their symptomatic presentation places them at Stage 3 or 4 of the WHO clinical staging guide.[4] These study participants were traced to the ART clinic register which was reviewed to identify women who based on their CD4 results or following the delivery of their babies and have been referred to the service from the PMTCT clinic. The ART register was reviewed for the period June 2009 to December 2013 to allow extra time for those women who may have delayed accessing the ART services. The women, who were found on the ART register, had their consent sought, and questionnaires administered to them. In addition, the women who are not found on the register, which is an indication of default

on referral, were tracked on phone, their consent sought, and questionnaires administered to them also.

In addition, qualitative data collection methods, using focus group discussions comprising of the PMTCT and ART clinic staff. Three (3) sessions of FGD was conducted, one(1) separate session each for the PMTCT and ART clinic staff of both the sampled comprehensive and satellite sites. The Focus Group Discussion (FGD) was facilitated by the principal researcher at the ANC, PMTCT and ART clinics with members of staff whose daily work contributes to the provision of PMTCT, ART and voluntary counseling and testing (VCT) services. The FGD sessions was audio-tape recorded by a recorder and later transcribed into Microsoft word format. In addition a note taker was selected to take detailed notes of the proceedings. The FGDs was conducted in a conducive environment and timing for all participants to ensure confidentiality and openness of quality responses, with each session lasted averagely one hour. Each group consisted of averagely six (6) persons, who accepted to participate in the group discussion.

HIV positive mothers who defaulted on referral from PMTCT clinic to ART clinic were actively traced to their individual home addresses, with the assistance of the health workers at ANC and PMTCT clinics and the HIV support group executives in each sampled sites and consent to participate in the study was sort from those found at home for those absent from home as at the time of visit, a repeat visit was conducted to ensure that the respondents were interviewed. While the women who had accessed ART, care and support services were at the ART clinic during clinic days or also traced to their home, if they do not attend clinic during the data collection period. For every eligible woman who agree to participate in the study, a questionnaire on factors associated with default on referral, was administered to them to determine the peculiar factors

associated with linkage between PMTCT and ART services amongst these women. Thus both quantitative and qualitative data collection methods were used to gather data for this study.

3.8. Data Management

3.8.1. Measurements of Variables

3.8.1.1. Record Review Tool

The review tool had under consideration the following variables for measurement:

i. HIV positive status: those women who were found to be HIV positive.
ii. CD4 Count: Pregnant women with CD4 count results 350 or below which makes them eligible for initiation of ART.
iii. Referral Status: an indication in the PMTCT registers of whether or not women required ART as indicated by their CD4 count or clinical staging had been sent from PMTCT to the ART service point where they could begin treatment.
iv. ART service linkage status: an indication in the ART registers of whether or not women required ART as indicated by their CD4 count or clinical staging have presented from PMTCT to the ART service point where they could begin treatment
v. ART service uptake: Utilization of ART or care and support services by pregnant women who had been referred there from the PMTCT service point. See appendix for detailed sample document.

3.8.1.2. Focus Group Discussion Guide

The FGD guide was a set of probing questions. This guide was adopted from a South African study. [55]The questions were under the following themes:

I. ANC- PMTCT client flow/referral within the facility
II. Description of PMTCT service provision in the facility

III. Factors hindering PMTCT –ART referral in the facility

IV. Measures to improve PMTCT-ART linkage

3.8.1.3. Structured Questionnaire for Default study

A structured questionnaire with two sections was used to gather data from the default study. Section A was on demographics such as age, marital status, religion, educational status and employment status of the respondents, while section B comprised of referral linkage related questions .See appendix for sample questionnaire.

3.8.1.4. Data Quality Control

The good quality of data was ensured during the study by training of research assistant about the study and equipping them with data collection skills prior to the study. There was also pre-testing the study tools in one of the health facility in Abuja, FCT, daily supervision of research assistant and daily meetings with research assistants to find out challenges been experienced.

3.8.2. Statistical Analyses

Quantitative data gathered from record reviews was captured onto a Microsoft Excel worksheet and exported to Epi Info version 7.1 for cleaning and generation of descriptive statistics using frequency tables and cross tabulations. The quantitative analysis sought to determine which of the pregnant women whose CD4 count indicates the need for ART initiation have began treatment. Each study participant was provided with a unique identification number on the spreadsheet for the study purpose. Identifiers from the PMTCT registers for women who required treatment were compared against those in the ART register to determine how many of them had accessed ART services. The participant ID contained no identifiable information that can be used to identify a subject directly or indirectly. The study participants' medical records and all identifiers was stored in a separate password protected database and kept locked in laptop used for the data collection and analysis. Uni-variate, bi-variate, stratified and multivariate

analysis (logistic regression) was conducted. The binary outcome variable included being linked to ART services and not being linked to ART services. Chi-square test was used to determine significant association between qualitative variables. A p-value of ≤ 0.05 was considered significant and used to compare between comprehensive and satellite sites, with regards to receiving a CD4 count result and accessing ART services. A 95 % confidence interval was calculated for the estimates. The analytical assessment on comparing two groups on ART utilization was done using odds ratio with p-value of 0.05 for significant testing.

Qualitative data from focused group discussion was thematically analyzed. Firstly, the entire interview proceedings was transcribed, which did not only facilitate further analysis, but also it established a permanent written record of the group discussion, for future reference. Then the process of thematic analysis was followed which include; becoming familiar with the data, generating initial codes, searching for themes (implicit and explicit ideas or patterns within the data),reviewing themes, defining and naming themes, then producing the final report in line with the identified themes. The qualitative data have been incorporated into the study results to add depth to the findings. Quotes from the interviews have been included as part of the results.

3.9. Ethical Considerations

Ethical clearance was obtained from the Ministry of Defence Health Research Ethics committee (MODHERC) and the ethical committee of Kaduna State Ministry of Health, before commencement of the study. The provisions of the HELSINKI declaration was respected.[59] All participants had the consent form administered to them in the language best understood by them by a member of the study team. Those willing to participate had the study fully explained to them and a written informed consent was sought and obtained from each of the eligible

participants before the commencement of the study. Any participant who could not read or write identified an impartial witness (not a relative) to witness presentation of the informed consent process. All participants in the study signed the Informed Consent Form. Confidentiality of PMTCT client records was maintained by capturing all data into Microsoft excel spread sheet and keeping it password protected. Personal identifications details such as names of clients and dates of birth that can be used to link the client records from the different registers reviewed were not included in the report. However, once matched, the identifiers were removed and unique identification numbers assigned to each record. Informed consent was sought from focused group discussants before the sessions were held. It was made clear to them that participation is voluntary and that declining to participate did not bear any negative consequences on them. Names of the sampled facilities and focus group discussants were not included in the report. The result of the focus group discussions is presented in such a way that is it's not possible to distinguish who discussants are.

3.10. Limitations

This study was faced with a number of limitations which resulted primarily from lack of resources to carry out more in depth data collection activities. Incomplete monthly PMTCT and ART report forms in sampled health facilities and missing reports may be limitations to this study, which would be a source of information bias for the study. Pressure of work and lack of time made some FGD discussants not to participate fully and this affected quality of time to probe the issues under consideration. Also use of different data capturing systems at PMTCT and ART service points made it difficult to trace some of the women who had been referred from PMTCT to ART. Time and resource constraints made it difficult to trace and interview women

who have defaulted PMTCT - ART referral. A major drawback to a purely facility-based approach is representativeness.

CHAPTER FOUR - RESULTS

4.1Quantitative study

4.1.1 Univariate analysis for PMTCT-ART linkage factors

4.1.1.1 Descriptive statistics

Variables	Not linked to ART services and	Linked to ART services and

	uptake (n=56) (%)	uptake (n=316) (%)
Age (years)		
Mean (std dev)	30.9 (±4.9)	31.4 (±4.6)
Marital status		
Married/cohabiting	42.0 (74.7)	203.0 (64.3)
Single/divorced/widowed	14.0 (25.3)	113.0 (35.7)
Educational status		
None/primary	6.0 (10.7)	28.0 (8.9)
Secondary/tertiary	50.0 (89.3)	288.0 (91.1)
Employment status		
Unemployed	21.0 (37.5)	131.0 (41.5)
Employed	35.0 (62.5)	185.0 (58.5)
PMTCT clinic		
Comprehensive site	50.0 (89.2)	215.0 (67.9)
Satellite site	6.0 (10.8)	101.0 (32.1)

Table 1: Socio-demographic characteristics of respondents

The above table 1 shows the socio demographic characteristic of respondents. Mean ages of the clients that did not have ART uptake and those that had ART uptake were 30.9 ±4.9 and 31.4 ±4.6 years respectively. Six point three percent (6.3%), of those that did not have ART uptake and 12.5% of those that had were in the age group <25 years. There were equal numbers of Christians and Muslims among the respondents. Majority of those that did not have ART uptake and those that had ART uptake were married or cohabiting (74.7% and 64.3%) and at least primary school education (10.7%and 8.9% respectively). Thirty seven point five percent (37.5%) of those that did not have ART uptake and 41.5% of those that had ART uptake were unemployed.

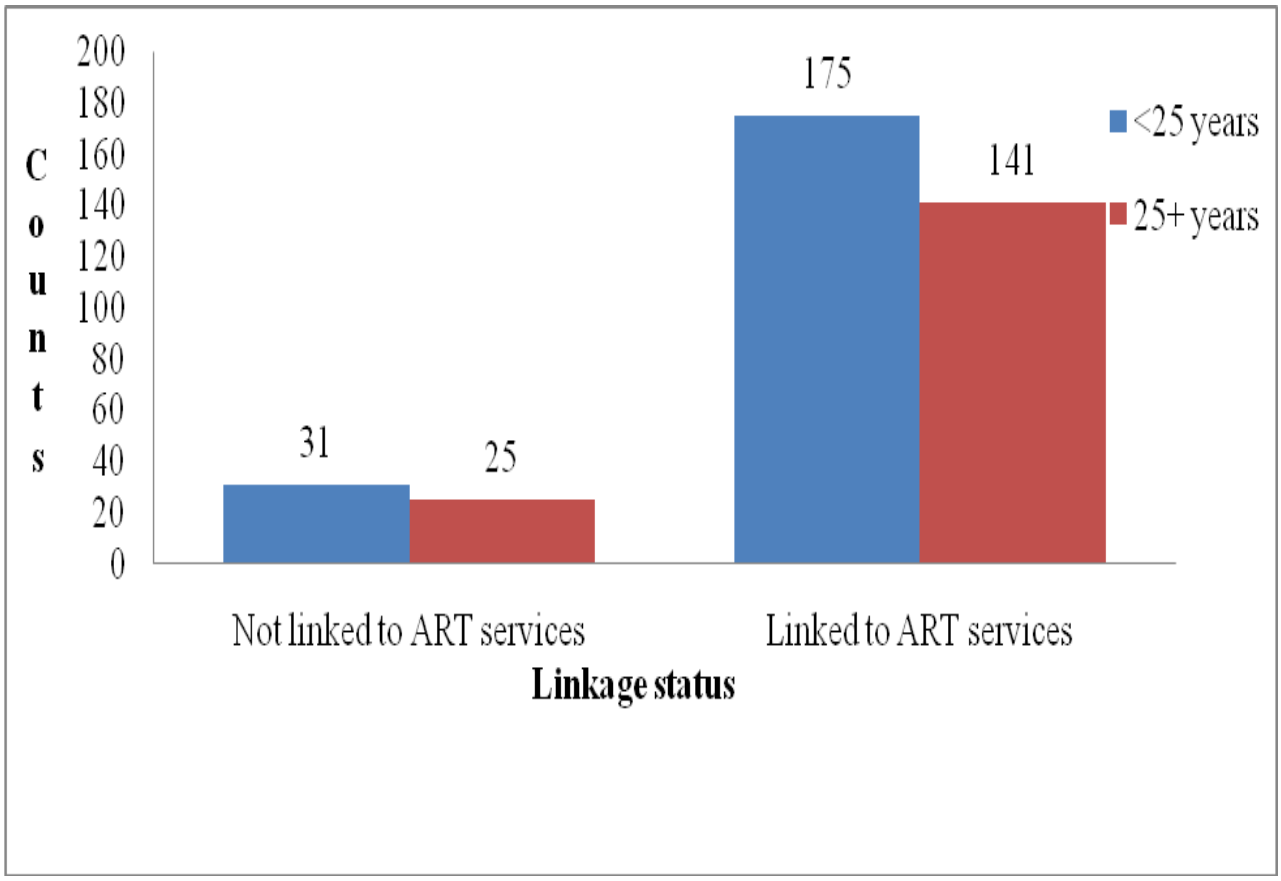


Figure 3 : Distribution of age groups among respondents by linkage status

The figure 3 above shows that over 80% of the respondents of those linked to ART services and uptake and those not linked was greater than 25 years of age. There were more <25 year old among those linked to ART services and uptake than those not linked to ART services and uptake.

Table 2: PMTCT linkages to ART, care and support

Variable	No. of clients identified	No. of clients reviewed	Percentage	95% CI
HIV testing				
Women tested HIV negative	5058	5236	96.6	91.8 – 101.4
Women tested HIV positive & accessed PMTCT services	178	5236	3.4	3.2 – 3.6
Eligiblity of ART				
HIV positive pregnant women eligible for ART referral	151	307	49.2	43.5 – 54.9
Referral to ART among those who returned for their results				
Eligible women referred to ART	146	151	96.7	92.4 – 98.9
Eligible women already on ART	79	151	52.3	44.0– 60.5
Linking PMTCT to ART				
Eligible women traced at ART clinic with referral	141	147	95.9	91.3– 98.5
Eligible women traced at ART clinic with no referral	6	147	4.1	1.5 – 8.7
Eligible women already on ART	75	141	53.2	44.6– 61.6
ART eligible women traced to ART	141	151	93.4	88.7– 98.0
Linkages to adult care and support				
Eligible for adult care& support services (CD4 $\geq$ 350)	156	307	50.8	48.3– 53.3
Women referred to adult care & support services	153	156	98.1	94.5– 99.6

The above table 2 shows PMTCT-ART and care & support linkage activities. For the period under review, of the 5,324 women who attended antenatal clinic in the two study sites, 5,236 (98.3 %) had HIV counselling and testing done. From both the comprehensive and satellite sites,only 178 (3.4%) women were originally tested at these facilities and found to be HIV postive hence were qualified for enrollment into the PMTCT programme, the remaining 194 HIV positive women enrolled into the PMTCT programme were tested outside the study facilities and referred to access PMTCT services. Of the total women positive for HIV, 49.2% were eligible to be referred for ART for their own health. All the women who were eligible for ART returned for their CD4 results. Most of the women eligible for ART 96.7% had indication of referral to ART. However, of these women who were eligible for ART, 52.3% reported already being on ART. The remaining 50.8% of the women who were positive to HIV had CD4 count of ≥ 350 cell/ml, hence elibilgle to be referred for adult care and support services. However, most of these women 98.1% reported being referred to adult care and support services.

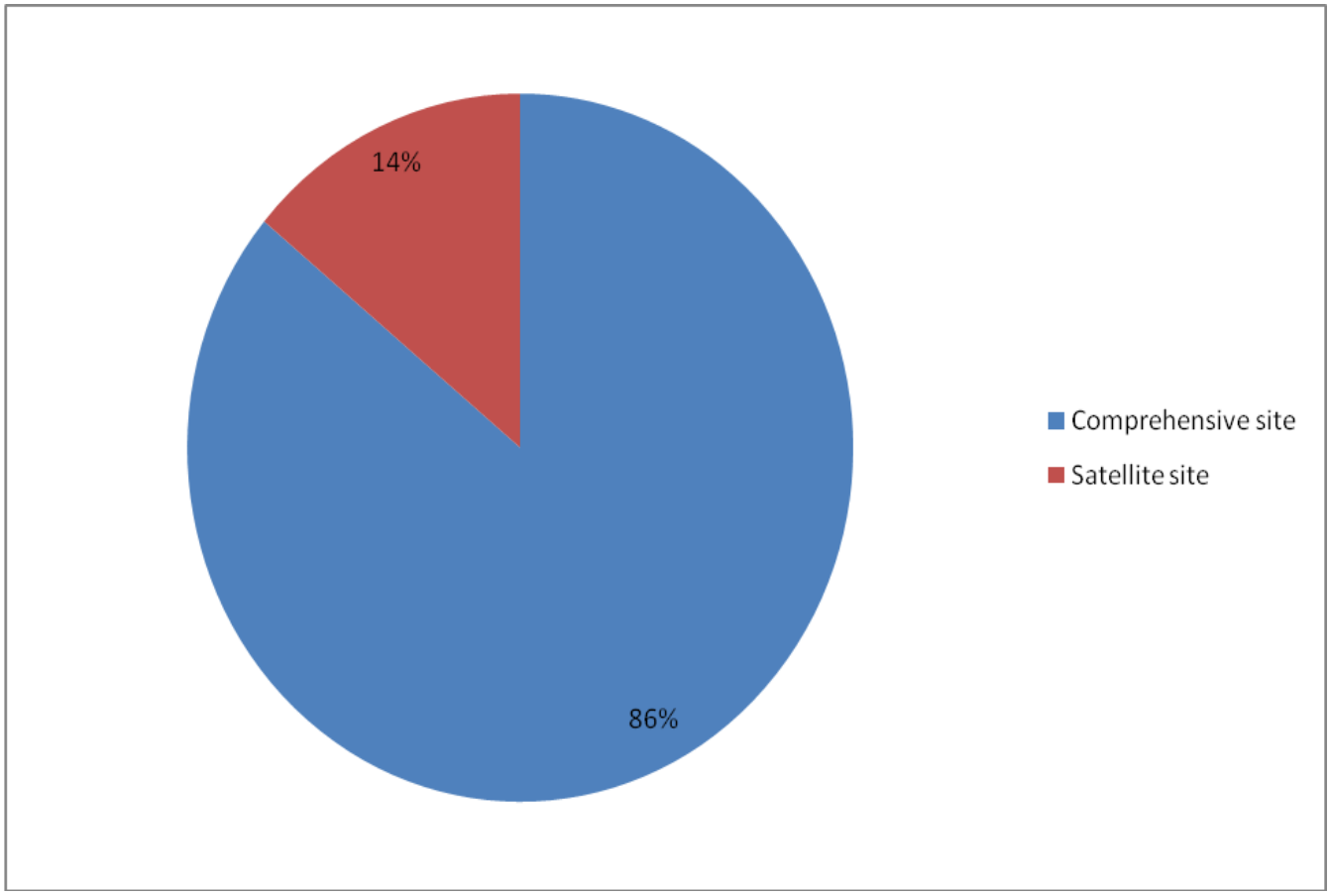


Figure 4 : Proportion of women who assessed PMTCT services January 2009 - December 2013 by site type

The above figure shows the proportion of the HIV positive women who assessed PMTCT services, with 14% of the 372 respondents assessing the PMTCT services from the satellite site, while the rest 86% from the comprehensive site between the study period, January, 2009 and December, 2013.

Table 3 : PMTCT to ART linkages by type of site

Variable (n=372)	Comprehensive site (%)	Satellite site(%)	Total
Number of CD4 count test done	320 (86)	52 (14)	372
Women who did not return for CD4, with no CD4 results records	1 (12.5)	7 (87.5)	8
Number of CD4 counts ≥350 cells/mm^3	144 (96.3)	12 (0.7)	156
Women with CD4 below 350 cells/mm^3	129 (85.4)	22 (14.6)	151
Eligible women with no referral	5 (100)	0 (0)	5
HIV positive women already on ART	66 (83.5)	13 (16.5)	79
ART eligible women traced to ART	141 (95.9)	6 (4.1)	147
Women eligible for care and support	144 (92.3)	12 (7.7)	156
Women traced to care and support	135 (91.8)	12 (8.2)	147

Table 3 above shows data of linkage activities between PMTCT and ART service points by type of site, of 372 CD4 count test conducted, 8 respondents returned for their CD4 results of which 87.5% were from the satellite site. Of the 156 respondents that had CD4 counts ≥350 cells/mm^3, 96.3% were from the comprehensive site. Of the 151 respondents that had CD4 counts <350 cells/mm^3, 14.6% were from the satellite site.

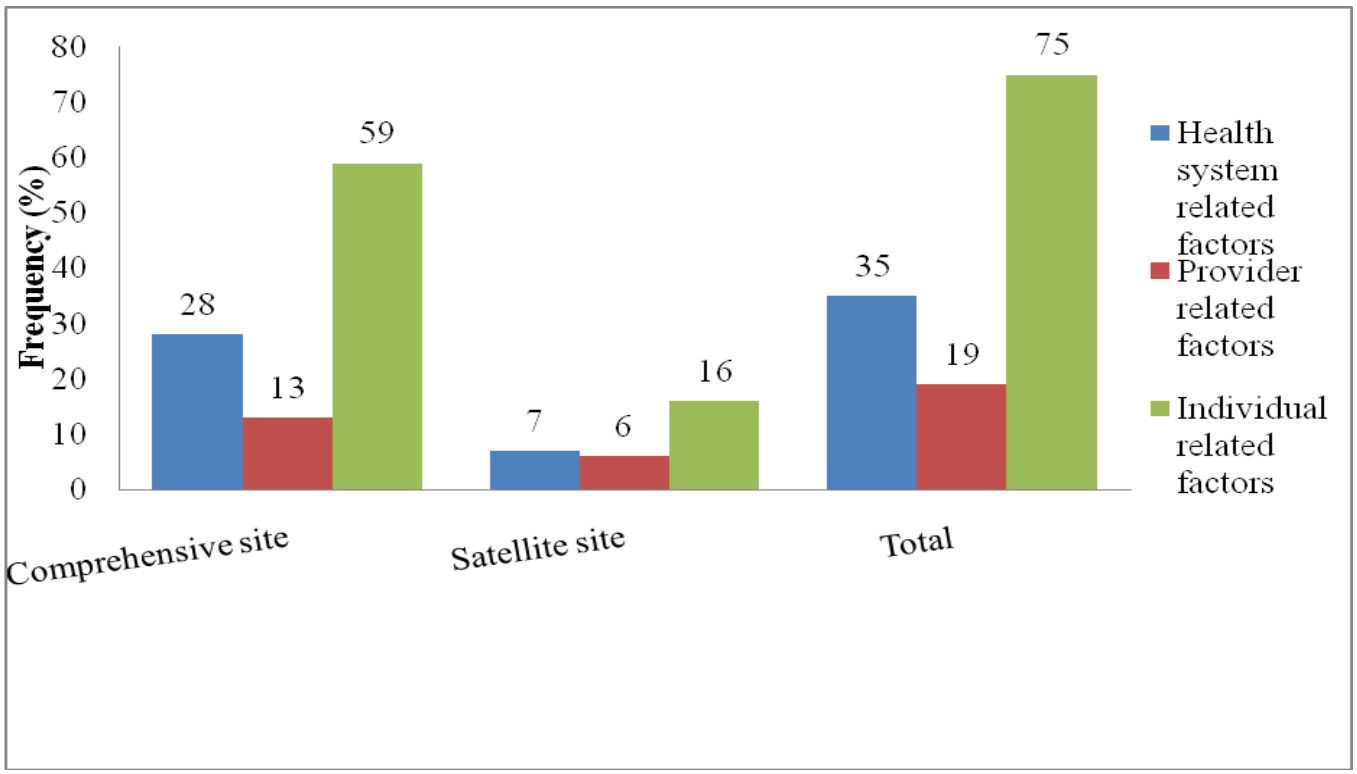


Figure 5 : Factors associated with PMTCT -ART referral linkage by type of site

The above figure 5 is a histogram showing the break down by type of site, of the factors associated with PMTCT –ART referral linkage. Individual related factors which include; age of client, marital status, religion, educational level, employment status, were more prominent in both the comprehensive and the satellite sites followed by health system related factors which include; referral status of clients and form of referral (either oral or written form) and lastly by the provider related factors which include; referring health personnel, stigmatization by health worker, long waiting time at the facility, unfriendly health workers at the health facility, in both comprehensive and satellite sites.

4.1.2 Bivariate analysis for factors associated with PMTCT- ART referral linkage

Table 4 : Socio- demographic factors associated with referral linkage in two Nigeria military health facilities

Variable	Not Linked to ART services (Frequency%) n =56	Linked to ART services (Frequency%) n = 316	OR(95% CI)	P- Value
Age(at last birthday)				
<25 years	31(55.4)	175(55.4)	1.0 (0.6 – 1.8)	0.50
25+ years	25(44.6)	141(44.6)		
Religion	28(50.0)	158(50.0)	1.0(0.6 – 1.8)	0.50
Christain	28(50.0)	158(50.0)		
Muslim				
Clinic type attended for PMTCT	48(85.7)	272(86.1)	1.0(0.5 – 2.3)	0.46
Comprehensive site	8(14.3)	44(13.9)		
Satellite site				
Educational Level	6(10.7)	28(8.9)	0.8(0.3 – 2.1)	0.32
None/Primary	50(89.3)	288(91.1)		
Secondary/Tertiary				
Employment	21(37.5)	131(41.5)	1.2(0.7 – 2.1)	0.30
Unemployed	35(62.5)	185(58.5)		
Employed				
Marital Status	20(35.7)	80(25.3)	1.6(0.9 – 3.0)	0.06
Single/Div/Widowed	36(64.3)	236(74.7)		
Married/Cohabiting				

The above table 4 shows the socio demographic factors associated with linkage status of respondents. The age of respondents ,religion,clinic type attended for PMTCT were found not to be statistically significant with odds ratio of 1.0 each.Respondents with no or primary educational level were 0.8 times more likely not to be linked to ART services and uptake. Being unemployed was 1.2 times more likely to be assiociated with not being linked to ART.

Table 5: Factors associated with referral linkage in two Nigeria military health facilities

Variable	Not Linked to ART	Linked to ART	OR(95% CI)	P- Value

	services (Freq %)	services (Freq %)		
Referral Status				
Not Referred	52(92.9)	10(3.2)	397.8(120.3 -1315.8)	0.00
Referred	4(7.1)	306(96.8)		
Place of delivery of baby				
Not same as facility attended for PMTCT	18(32.1)	21(6.6)	6.7(3.3 – 13.6)	0.00
Same as facility attended for PMTCT	38(67.9)	295(93.4)		
CD4 eligibility				
>= 350 cells/ml	1(1.8)	155(49.1)	0.02(0.003 – 0.14)	0.00
<350 cells/ml	55(98.2)	161(50.9)		
Referring Personnel				
Nurse/Lab scientist/counselor	44(78.6)	203(64.2)	2.0(1.0 – 4.0)	0.02
Doctor	12(21.4)	113(35.8)		
Knowledge of reason for referral				
Not knowing why referred	4(7.1)	39(12.3)	0.5(0.2 – 1.6)	0.13
Knowing why referred	52(92.9)	277(87.7)		
Form of referral				
Written	25(44.6)	119(37.7)	1.3(0.8 – 2.4)	0.16
Oral	31(55.4)	197(62.3)		
Member of a support group	34(60.7)	205(64.9)	0.8(0.5 – 1.5)	0.28
Not a member	22(39.3)	111(35.1)		
A member				

The above Table 5 shows the bivariate level analysis of the other factors considered to be associated with linkage status. Referral status of not being referred to the ART clinic was found to be a risk factor for non ART uptake by the clients (OR: 397.8, 95% CI= 120.3 – 1315.8).

Delivering of baby in a different facility from the one attended for ANC/PMTCT, increased the risk of non ART uptake among clients (OR: 6.7, 95% CI= 3.3 – 13.6). Fullfiling the CD4 eligibility criteria of ≥350 cells/ml was found to increase the likelihood of not commencing ART among clients (OR: 0.02, 95%CI= 0.003 – 0.138).

4. 1.3 Multi-variate Analysis

Table 6: Unconditional logistic regression of variables

Factors affecting PMTCT- ART referral linkage	Odds ratio	Confidence Interval	P- value
Not being referred	335.98	80.37 – 1404.53	0.00
Having CD4 eligibility(≤350cells/ml)	0.06	0.01 – 0.60	0.02
Not knowing the reason for referral	2.72	0.36 – 20.34	0.33
Delivery of baby at a different place from PMTCT services	0.79	0.18 – 3.42	0.75
Not being referred by a doctor	1.22	0.32 – 4.60	0.77
Married/Co-habiting	0.92	0.25 – 3.38	0.90

The above table 6 shows other factors considered to be affecting PMTCT –ART linkage at the multivariate level. Each factor that showed a statistically significant difference between those women who were linked to ART uptake and those not linked to ART uptake in bivariate analysis was incorporated into a logistic regression model. The inclusion of marital status, place of delivery of baby, knowledge of reason for referral, and referring personnel as categorical variables in the model revealed that these factors were not significant contributors to non ART uptake among the clients. However, only two factors, the referral status of not being referred and CD4 eligibility (≥350 cells/ml) were associated closely with non ART uptake among these clients.

4.2 Qualitative Study

There were three (3) separate sessions of FGD. One each with a set of doctors, nurses, and health records personnel. All the participants were staff of the referral facility (comprehensive site). The perceived issues describe by participants fell under the following four broad themes. No new themes emerged from the various FGD sessions, and thus quotations are presented from all data sources.

Thematic Areas

ANC – PMTCT client flow/referral within the facility

The accounts given on the flow of pregnant clients in the facility, from the three sessions were similar. All clients come into the facility from general outpatient department (GOPD), and then referred by the health records personnel orally by mouth to the antenatal clinic (ANC). The facility runs an ANC programme with Mondays as booking days and Wednesdays as follow up days weekly. At the ANC new clients are registered and booked with a folder opened for the client. Group HIV counseling and testing is conducted for all clients, however, with the option to opt-out, and subsequently individual post test counseling for those found to be positive for HIV. The HIV positive clients are then referred to the HIV/AIDS clinic also called clinical training and research centre (CTRC) on the same day. The CTRC is located within the same complex, where another patient's folder is opened for the same client. The clients are then evaluated and sent for other baseline laboratory investigations like CD4 counts and full blood counts e.t.c. Hence, in practice is the fact that every HIV positive pregnant woman who attends antenatal clinic in the facility owns who separate folders, one at the ANC and the other at the CTRC. For subsequent follow up visits clients are expected to attend ANC where they are seen by a different set of health care providers for their obstetric needs and then also to go to the CTRC where they

are seen by another set of health care providers for their PMTCT (ARV drugs) needs. Poor communication between the two different set of health care providers offering care to the HIV pregnant woman in the facility was identified as a major setback in the referral system. A quote from one of the participants captures it thus: *"There is no proper linkage and communication between the health care providers at the ANC and the CTRC with regards to the care of a pregnant HIV positive woman attending this facility".*

Description of PMTCT service provision in the facility

The facility is a referral facility for a number of public and private hospitals in the state and environs. Hence, the clients that access the PMTCT services in this facility also include; clients who attend ANC in other facilities and only attend CTRC for their PMTCT needs. Worthy of note is the fact that there are some peculiar issues with PMTCT clients which include: *"Some of the clients that are identified at the ANC as being HIV positive decline from referral to the CTRC for their PMTCT care for reasons such as denial of HIV status, non disclosure to partner, clients may not be domicile here so do not want to be enrolled here".*

However at the end of the PMTCT intervention after the delivery of the baby, the clients who are eligible for adult ART and those who are eligible for adult care and support are then referred to relevant sections at the CTRC respectively.

Factors hindering PMTCT- ART referral in the facility

Highlights of the factors hindering the PMTCT- ART referral in the facility as proffered by discussants include the following;

1. Clients not returning for CD4 count results.

"Some clients do not return for their CD4 count results, hence it become difficult to categorize the clients into those that need ART and those that need adult care and support only"

2. Some clients provided wrong numbers to the records personnel during registration. However, from 2011, this was rectified by ensuring that during registration the records officer immediately dials the number to confirm, its genuineness.

"Most of the telephone numbers of clients on their folders are not reliable"

3. Stigmatization is still a factor that affects referral between these service delivery points.

"Patients hide and refuse to go to CTRC because they have self stigmatized themselves. Some unbooked clients in labour at the labour ward refuse to reveal their status, so go unidentified"

4. Security challenges facing the region of the country is contributing factor to poor linkage between PMTCT and ART services.

"The increased security checks at the gates to the facility has scared some civilian clients coming from outside the barracks to continue attending ANC and PMTCT clinics here"

5. Non –disclosure to partner was also a factor identified as a hindrance to PMTCT- ART linkages. Women who came for antenatal care were quite comfortable to access other services provided including PMTCT care while they were pregnant. However, after delivery of their babies, for those that have not disclosed their status to their partners, accessing continued care for their own health the ART clinic becomes a challenge.

"Non-disclosure is a very big challenge that hampers clients follow up"

6. Difficulty in tracking and ensuring that all women who attend the facilities for ANC/PMTCT services to return and have their babies at the same.

"Not all the women attending ANC in this facility return for delievry and referral in this facility where they attended for ANC and PMTCT services"

7. There is a duplication of records of every ANC client, with each having two folders, one at the ANC clinic and another at the PMTCT service delivery point. *"The staff offering services to these clients at these two points do not compare notes or interacting effectively hence causing confusion".*

Measures to improve PMTCT-ART linkage

The recommendations made by the participants across the three sessions with regards to improvements on the PMTCT- ART linkages in the facility included; "*Quality counseling for clients to minimize self stigmatization and also increase focus to include need for adult care even after delivery"* . Also having a good patient tracking system, implementation of written policy on effective two way referral within and outside the facility, improved strategies for partner disclosure, better integration of services between ANC and PMTCT service delivery points in the facility were highlighted as recommendations. There should also be one folder per client who accesses ANC and PMTCT Services In 44NARHK.

CHAPTER FIVE - DISCUSSION

The rate of acceptance of HIV testing among women who accessed ANC for the first time for that given pregnancy was high. This high rate of acceptance among the ANC clients is a pointer to the fact that ANC is and still remains a unique oppurtunity for picking HIV positive individuals within the general population and a great oppurtunity for HIV postive mothers to be identified and enrolled into the PMTCT programme , in order to protect thier unborn children from MTCT of HIV.[25] The PMTCT clients who were linked to ART services and those not linked with ART services were similar in age group. Majority of the respondents were less than twenty-five years old and thus reflecting a young population, decrease in the productive age, which could have serious economic implications, such as reduction in the manpower hours put in by the respondents at thier respective workplaces due to thier ill- health, which is directly related with reduced productivity, leading to reduced individual economic capacity and ultimately suboptimal economy of the nation. Because there was equal number of christains and muslims selected for the study, this study could not assess the possiblity of religion being a risk factor for non – linkage to ART services.

Majority of those who were linked to ART services and those not linked with ART services were either married or co-habiting. Similarly, most of the respondents had educational status of secondary school and were employed by either self or another person or organisation. Only about a quarter of the respondents attended a satellite site for PMTCT services.

The HIV prevalence of women who attended ANC in the two military hospitals during the study period is closely similar to the HIV prevalence of women aged 15-24 years in Kaduna state found in the ANC sentinel survey of 2010.[26] One of the study facilities , the comprehensive site , being a referral centre for many public and private hospital in the state, had about quarter of the

clients selected for the study to be referred from other hospitals hence these numbers were not reflected in the proportion of women who tested positive for HIV.About half of the respondents selected found to be eligible for ART referral ,with CD4 count of < 350 cells/ ml which is similar to preliminary findings of an intervention study in Malawi and another cohort study in Tanzania.[37,38] The over ninety-five percent of eligible women referred to ART from this study still falls short of the 100% referral rate of HIV infected women after postnatal care to adult ART care and treatment recommended by, hence there is still room for improvement on the referral rates the national guideline for PMTCT.[4] Most of the women that were found to be eligible had returned for thier CD4 results, compared to only 37% reported from a South African study conducted in 2010.[55] This high rate of return for CD4 results among these eligible women, may have been attributed to the fact that all CD4 results are sent to the PMTCT clinic and as the women come for ANC visit/ PMTCT clinic visits, thier continum of care is based on thier individual CD4 results. However, there were more women who did not return for thier CD4 count results at the satellite site than the comprehensive site. This could be due to the fact that the CD4 count tests are not done on site at the satellite facility ,patients are sent to the comprehensive site for CD4 count tests hence, they may be lost in that transit if not properly tracked and followed up.

These women were able to fully take advantage of all the oppurtunities to recieve emotional and clinical support from the PMTCT team. However, not all eligible women had indication of referral to ART. Of all those women traced to the ART clinic who were eligible for adult ART , less than 5% of them had no indication of being referred to the ART clinic. This could be atrributed to the fact that some women assessed the ART services by self referral, or because of incomplete data on the referral status of the clients in the records.This may also have being as a result of negligence on the part of the health care provider who was responsible for referring the

client to another service delivery section as needed by the client. This neligence by the health care worker to refer clients was an issue that was addressed by a intervention study in Zambia by building human resource capacity and improved facility capacity amongst other interventions and this increased the referral rate by over 40%, hence this can be considered in the Nigerian military health facilities offering these services.[37] The less than five percent of these women who had no indication of referral lost the golden oppurtunity of access adult ART treatment, with a greater percentage of these women with no indication of referral attending the comprehensive site, while satellite sites seeming to be more detailed and careful with referral of thier clients. Also these, women with CD4 <350 cells/ml have increased susceptibility to oppurtunistic infections and a much higher risk of developing full blown AIDS.

Over 80% and 60 % of clients that were referred to ART from the comprehensive and satellite sites respectively accessed the available ART services. The lower proportions in the satellite site may be closely related to the fact that the clients when referred from the satellite site to the ART clinic at the comprehensive site, they are lost to follow up on that referral, when not tracked closely, unlike the referral to ART clinic within the comprehensive site, the clients are more likely to access the ART service because of the distance/ proximity. This finding was simialr to findings in other studies where clients were more likely to access ART serivce which is onsite as the PMTCT service[36,60]

At bivariate analysis level when factors associated with PMTCT- ART referral linkage were considered. Socio demographic chacteristics such as age at last birthday, religion, educational status, employment status, marital status and clinic type attended for PMTCT,were considered and found not be statistically significant. However, clients who were not referred were almost 400 times more likely not to be linked to ART services than those that were referred (OR: 397.8,

95%CI = 120.3 – 1315.8); p<0.05) , this was in sync with the finding of a Malawian study where health workers failed to refer asymptomatic women to the ART clinic and focused attention on thier infants‘ health.[11] It also agrees with similar findings in other previous studies that also found out that non referral was highly linked to poor linkage.[38,50] Also a woman who delivered her baby in a different facility from that which she attended for PMTCT was more likely not to access ART than those who delivered thier babies in the same hospital as they had PMTCT care.This finding is very similar to that in a study in Tanzania.[38] This fact was also complemented by the findings of the focus group discussion during which it was mentioned that not all women attending ANC in the facilities return for delivery and referral at the same facility they attended for ANC.[54] Even though, in a Malawian study HIV-positive pregnant women were significantly less likely to be referred directly for ART initiation (adjusted OR: 0.29, 95% CI: 0.13-0.63), this study did not compare HIV postive pregnant women with non pregnant ones, because it only considered HIV postive pregnant women as study population.[36]

Women who were found to be eligible by CD4 cell count criteria were found to be more likely to be referred for ART than those to be referred to care and support services. This is being complemented by the findings of the FGD where some clients were found not to be returning for their CD4 results hence leading to a missed oppurtuinty to refer such eligible clients for ART services. However, regardless of the health care personnel that referred a client the outcome was not affected by the cadre of the health care provider.

The knowlegde of the reason for the referral and the understanding of the referral process was found not to be statistically significant in this study, even though in constrast in a Zimbabwean study, understanding the referral process was found to be statistically significant, with those who

understood it being thrice more likely to access ART services than those who did not understand the process.[39]

The fact a client was referred orally or with a written note and is a member of a support group or not were both found in this study not be statistically significant. However, contrast a Tanzanian study found these factors statistically signifant with those who were members of a support group being twice more likely to assess ART services than those not members.[38]

However, at multivariate analysis level, the logistic regression model considered various variables in the model, and found CD4 eligibility and whether a client was referred to ART or not , to be the only factors that stood out as still significant.In contrast to the results of a similar Malawian study at multivariate analysis revealed that participants who understood the referral process were three times more likely to access HIV care and treatment (OR = 3.21, 95% CI 1.89-11.65), however this study got a lower OR which was found not to be significant for the same variable.[39]

The qualitative study, which comprised of three(3) diffrent sessions of focus group discussion among doctors, nurses and health records personnel revealed factors that influenced PMTCT – ART linkage as a major thematic area. Unlike other studies that considered the HIV positive clients as participants, this study did not include them, hence posed as a limitation to this study. Hence, the findings of this study used the doctors, nurses and health records personnel as proxies for the HIV positive clients and findings were similar to those of other studies which found factors such as non disclosure to partner, self stigmatization and clients not returning for CD4 count result as responsible for weak PMTCT-ART linkage.[51] However security challenges in the region of the country was a major factor which was not found as a significant factor in other earlier studies.

CHAPTER SIX - CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

A large proportion of eligible women accessing PMTCT services were being referred to the ART clinic for treatment, care and support. Although the relatively few that were not referred still constitute a significant section of the population. A low proportion of ART eligible women missed the opportunity of accessing ART services due to the weak referral linkages in the facilities. CD4 eligibility and referral status were factors found to be associated with defective referral linkages in these facilities. From FGD, place of delivery of baby, poor ANC-PMTCT service integration, self stigmatization, non-disclosure to partner and security challenges were mentioned as likely factors influencing referral linkages. The rate of ART uptake by PMTCT clients referred to ART clinic is remarkably high.

Even though PMTCT –ART linkage in Nigeria Military health facilities offering these services has been identified as a problem that needs to be addressed, the findings of this study has highlighted majorly health system, provider- related and individual factors as the keys to the solution. These factors are referral status of clients, disconnect between the ANC and PMTCT service providers, CD4 eligibility, delivering baby in the same facility were ANC and PMTCT services were provided to client. The findings of this study underscore the need to put implement corrective programmatic measures to improve PMTCT-ART linkage in Nigeria military facilities.

6.2. Recommendations

With respect to intervention opportunities, this study has identified several possibilities. These include;

1. Strengthen integration of ANC-PMTCT activities in these Nigeria military facilities should be done by the site management and NMOD/EPIC management.

2. Emphasis by the counseling staff on quality counseling for HIV clients in care should be key to ensure that these clients understand the need for the referrals that they may be given.

3. The two - way written referral system should be enforced by management at the facilities, first ensuring that a written policy is well communicated to all relevant staff and tracking of all referrals should be implemented.

4. Active tracking system for defaulting clients should be strengthened in these facilities so as to ensure immediate efforts to recalling clients into care and support by the follow up team at the facility.

5. While it may be difficult to ensure that women deliver their babies in the same facilities as where they had ANC and PMTCT care, the programme management at both NMOD/EPIC and sites level, could consider extra incentives to clients who deliver in the same facility, like waivers of delivery fees for them. This is to encourage guaranteed quality continuum of care.

6. The referral process by the counselors and other relevant health care providers, of eligible clients should be initiated much earlier during pregnancy in order to take advantage of the time the clients spend in contact with the facility to ensure quality referral takes place.

7. There should be a harmonization of the services rendered at the ANC clinic and the PMTCT service points at the 44NARHK, with the management of the 44NARHK ensuring the implemention a one folder per client system to avoid duplications and conflicts in clinic information of the clients, for quality service and better linkage.

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APPENDICES

Appendix 1: Data review tool for ANC and PMTCT clinics

Q. No	Question	Skip	Coding
1	Clinic Type Comprehensive site ANC ……1 Satellite site ANC…..……2		
2	Clinic patient identifier number ……		
3	Date of first visit to ANC _____/_____/2013		
4	Date of Birth		
5	Last Menstrual Period ..... Gestation age at time of first ANC visit / (actual date of visit)<br...../.....		
6	Parity of women(Number of children)		
7	Received individual confidential pre-test counselling? Yes…….....….1 No……..……2	If No End	

8	Tested for HIV Yes……1 No……..……2	If No End	
9	Received individual confidential post-test Counselling Yes……1 No……..……2		
10	Received HIV test results Yes……1 No……..……2	If No End	
11	CD4 results obtained Yes……1 No……..……2	If No go to Q.17	
12	Date of requesting CD4 test _____/_____/2013		
13	Date of receiving CD4 results _____/_____/2013		
14	Period of time between requesting testing and receiving CD4 result One Week ……..…...1 Two weeks……..2 Three weeks……..3 Four weeks…….4		
15	Referred to care and support clinic Yes……1 No……..……2	If No go to Q. 21	

16	Date referred to care and support _____/_____/2013		
17	Location of Care and support service Onsite……...1 Offsite……..…….2		
18	Name of Clinic to which referred for care and support ……		
19	Referred to ART Yes……1 No……..……2	If No go to Q. 25	
20	Date referred to ART _____/_____/2013		
21	Location of clinic to which referred to for ART Onsite……..…….1 Offsite……..…….2		
22	Name of Clinic to which referred for ART. …….		
23	Referral to service other than ART? Yes……1 No……..……2		
24	Alternative service(s) to which referred Service 1:..……..……..…… Service 2: ……..……		

	Service 3: ……..……		
25	Date of referral _____/_____/2013		
26	Location of the service(s) Service 1: Onsite……..……1 Offsite……..……2 Service 2: Onsite……..……1 Offsite……..……2 Service 3: Onsite……..……1 Offsite……..……2		

***Appendix 2* : Record review tool for ART, Care and support clinics**

Q. No	Question	Skip	Coding
1	Clinic patient identifier number ……..……		
2	Clinic Type Comprehensive site ANC ……1 Satellite site ANC…..……2		
3	Type of Service offered ART……1 Care and support ……2		
4	Date of first visit to service _____/_____/2013		
5	Client CD4 count. …….		
6	Nature of clinic from which referred Onsite……1 Comprehensive site ……...2 Satellite site ……...3	If No End	
7	Service accessed ART……1 Care ……2 Nutrition…….3		

	Support group……..4		
8	Onward referral of client done Yes……1 No……..2	If No End	
9	Service to which referred ART……..……..1 Care and support ……2		
10	Location of onward referral service Onsite……1 Offsite…….2		
11	ART service uptake Yes……1 No……..2		

***Appendix 3*: Participant information sheet**

Good day, my name is Dr. Fatima Cheshi , I am a Masters degree student in the Faculty of Community Medicine at the Ahmadu Bello University ,Zaria . I am conducting a study on how prevention of mother to child transmission of HIV services are linked to referral services such as ART, Care and support. This information will hopefully be used to improve the PMTCT programme.

This is not an inspection; rather I am trying to learn what is really happening with PMTCT and other related services at health facilities. This facility was selected at random and not for any particular reason. If you choose not to participate in the study, there will be no negative consequences for you in any way. At the same time, participating in this study will not give you any direct advantages or direct financial benefits but will help to improve the PMTCT and ART program. Your participation is entirely voluntary and you can opt out of the discussion at anytime. If you decide to continue, I will ask you to sign a consent form to show that you have agreed to participate in the study. The consent form will be kept separately from this focus group discussion guide and questionnaire. The information you give me will be completely anonymous, your name and the name of the facility you work in will not be used in the report. Please answer questions as honestly and completely as you can. The focused group discussion should take about one hour to complete.

I have obtained ethical/government approval to conduct this study in this facility in Kaduna state

***Appendix 4*: Participant consent form (Focus Group Discussion)**

I understand that I am being invited to participate in this study, and that I have a free choice whether I agree to participate in the focus group discussion session or not. I also understand that I have the right to opt out of the session at any time and can refuse to answer certain questions.

I understand that I will be asked questions regarding the kind of work I do and that my confidentiality will be carefully guarded so that no one besides the researcher will be able to know what I said. I understand that all the answers given by different people will be combined, and so I cannot be identified, nor specific answers traceable to me.

I agree to participate in the focus group discussion session for the study on "Assessing the linkage between Prevention- of- Mother-to–Child-Transmission of HIV and Adult ART services in two Nigerian military health facilities".

Date ---------- Participant's signature ----------

I have fully explained the procedure to the participant. I have asked whether or not the participant has any questions regarding the focused group discussion and have answered the questions to the best of my ability. The participant has freely volunteered to participate in the study.

Date ---------- Interviewer's signature ----------

Appendix 5: **Participant Consent Form (PMTCT-ART referral defaulter study)**

I understand that I am being invited to participate in this study, and that I have a free choice whether I agree to participate in the study or not. I also understand that I have the right to refuse to participate at any time and can refuse to answer certain questions.

I understand that I will be asked questions regarding referral from PMTCT to Adult ART clinic and that my confidentiality will be carefully guarded so that no one besides the researcher will be able to know what I said. I understand that all the answers given by different people will be combined, and so I cannot be identified, nor specific answers traceable to me.

I agree to participate in the study for the study on "Assessing the linkage between Prevention- of-Mother-to–Child-Transmission of HIV and Adult ART services in two Nigerian military health facilities".

Date ---------- Participant's signature ----------

I have fully explained the procedure to the participant. I have asked whether or not the participant has any questions regarding the study and have answered the questions to the best of my ability. The participant has freely volunteered to participate in the study.

Date ---------- Interviewer's signature ----------

***Appendix 6* : Focus Group Discussion Guide**

Time allowed- 1 hour Number of participants – 6-12 persons

Introduction of participants

Before we begin, I would like you to think about the work that you do and about the services that you and your team members deliver. You help lot of women and through them their families to live healthy lives. With these thoughts in mind …….

I. Can you describe how clients are referred within and outside the facility?
.....

II. In your own view, how would you describe PMTCT service provision and referral systems In Place in this facility?

.....

III. In your own opinion, at are the possible factors that hinder PMTCT clients to present at the ART Clinic when referred?

.....

IV. What you think could be done to improve the referral systems between your clinic and other Services to which you refer clients?

.....

We have now come to the end of the interview, thank you so much for taking to time to participating in this discussion.

***Appendix 7*: Study questionnaire on factors associated with PMTCT –ART referral among referred PMTCT clients**

Questinniare No.:….

Section A

Demographics

Age(at last birthday) ……

Date of Birth ……

Marital status: i.Single/Separated.…1, ii. Married/Cohabiting….2, iii. Divorced…..3, iv. Widowed…..4

Religion: i. Christain …1, ii. Muslim….2, iii. Traditional….3

Educational Level:i. None….1, ii. Primary ….2, iii. Secondary ….3, iv. Tertiary ……4

Employment status: i.Unemployed …..1, ii. Self employed….2, iii. Employed by another

Section B

Referral linkage related questions

Q. No	Question	Skip	Coding
1	Client identifier number ……		
2	Clinic Type attended for PMTCT service		

	Comprehensive site ANC ……1 Satellite site ANC…..……2		
3	When did you know your HIV status Before ANC/ PMTCT.....1 In ANC/PMTCT 2		
4	Were you referred to (Name of facility)? Yes……1 No…….2		
5	What form was the referral? Oral……..1 Written…….2		
6	When were you referred Less than 6 months ago…….1 More than 6 months ago…….2		
7	Do you know why you were referred to (name of facility)? Yes……1 No…….2		
8	Who referred you to the facility? Nurse…….1 Doctor……2 Lab Scientist…….3		

	Counselor…….4 Others ……5		
9	What service were you referred for? ART…….……..1 Other……2		
10	Have you gone to the 44NARHK since you were referred? Yes……1 No…….2	If yes skip to Q11	
11	What is/are the reasons why you did not go to the facility? Answer each question as an individual question as Yes……1 No…….2 a) I do not understand the referral system b) I delivered in another facility c) I do not believe I need to take ART d) The distance to the facility is too much for me e) Long waiting time before clients are seen f) Percieved long queues at the facility g) Lack of transport fare to go h) I do not know the place where the facility is located i) I do not want to expose my status to another group of health workers		

	j) There is someone or a relation I know that works there and I do not want him/her to know my status k) Clients waste a lot of time at the facility before they get attended to l) I prefer another facility which I am already attending m) I prefer another facility which I am not yet attending n) I am too busy and have no time to go to the facility o) I think there is unreliable laboratory testing at the facility p) The staff at the facility are unfriendly. q) Others specify.....		
12	Are you part of any support group? Yes……1 No…….2		
13	Do you live with your partner? Yes……1 No…….2		

Appendix 8 **: List of Nigeria military health facilities offering HIV services**

NMOD-DOD WRP-N Site List		
Serial	**Site**	**Type**
1	Armed Forces Specialist Hospital Kano	Comprehensive
2	Defense Headquarters Medical Centre Abuja	Comprehensive
	(a) Ship House Medical Center Abuja	Satellite
	(b) Nigeria Defense College Medical Center Abuja/MRS Ushafa	Satellite
	(c) Guards Brigade Mambilla Barracks Abuja	Satellite
	(d) 7 Guards Medical Reception Station Abuja	Satellite
	(d) 177 Battalion Medical Center Keffi	Satellite
3	44Nigerian Army Reference Hospital Kaduna	Comprehensive
	(a) Nigeria Defense Academy Medical Center Kaduna	Satellite
	(b) Depot Medical Center Zaria	Satellite
	(c) 1 Division Hospital Kaduna	Satellite
	(d) Military Hospital Jaji Cantonment	Satellite
	(e) 2 Battalion Hospital Kaduna	Satellite
4	68 Nigerian Army Reference Hospital Yaba	Comprehensive
	(a) 9 Brigade Medical Center Ikeja	Satellite
5	Nigerian Navy Reference Hospital Ojo	Comprehensive

	(a) Nigerian Army School of Medical Sciences (NASMS) Ojo	Satellite
	(b) Obisesan Naval Medical Center Lagos	Satellite
	(c) 149 Battalion Medical Reception Station Ojo	Satellite
6	2 Division Hospital Ibadan	Comprehensive
7	3 Division Hospital Jos	Comprehensive
8	82 Division Hospital Enugu	Comprehensive
9	Military Hospital Lagos	Comprehensive
10	Military Hospital Portharcourt	Comprehensive
11	Military Hospital Benin	Comprehensive
12	Nigerian Navy Hospital Calabar	Comprehensive
13	Nigerian Navy Hospital Warri	Comprehensive
14	45 Nigerian Airforce Hospital Makurdi	Comprehensive
	(a) 72 Battalion Medical Center Makurdi	Satellite
15	445 Nigerian Airforce Hospital Ikeja	Comprehensive
16	1 Brigade Medical Centre Sokoto	Comprehensive
17	21 Brigade Medical Centre Maiduguri	Comprehensive
18	34 Brigade Medical Centre Owerri	Comprehensive
19	Naval Medical Centre Onne	Comprehensive
20	302 Medical Reception Station Onitsha	Comprehensive
21	108 Nigerian Airforce Hospital Abuja	Comprehensive
22	345 Aeromedical Airforce Hospital Kaduna	Comprehensive

23	347 Nigerian Airforce Hospital Jos	Comprehensive

Appendix 9: **Work plan for study (Gantt chart)**

TASKS TO BE PERFORMED	2013												2014				
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
1.Topic approval and proposal writing																			
2.Finalize research proposal and submit for clearance																			
3.Obtain all necessary approvals from Ministry of Defence for the study																			
4. Identify and train data extractors																			
5.Collect and enter data																			
5.Clean data																			
6. Analyze data and write report																			
7. Feedback, discuss and disseminate research findings.																			

Appendix 10: **Dissemination Plan**

Place of Dissemination	Avenue	Audience	Remarks
Nigeria Military HIV/AIDS Programme	Oral Presentation(meeting)	Programe Staff	To be organized immidaitely after completion of research
Ahmadu Bello University, Zaria	Seminar series	Students and lecturers	To be allocated time in the routine program
	Scientific Journals	Acedemicians and general public	To submit the abstract
Nigeria	APSON conference EPISON conference	Acedemicians, Minisrty of health officials, politicians	To submit the abstract
International	AFENET and EPHINET conferences	Acedemicians, policy makers, donor agencies	To submit the abstract

Ethical Clearance

CERTIFICATE OF ETHICS APPROVAL

M.O.D. Health Research Ethics Committee
Ship House, Area 10, Garki, Abuja.
Email: modhrec@gmail.com. Tel: 0802 309 3714

MODHREC/APP/ 042

14th February, 2014

Dr. Fatima Chesi,
Department of Community Medicine,
Ahmadu Beilo University Zaria.

NOTICE OF FULL REVIEW AND APPROVAL OF RESEARCH PROTOCOL TITLED ASSESSING THE LINKAGE BETWEEN PREVENTION-OF-MOTHER-TO-CHILD-TRANSMISSSION OF HIV AND ADULT ART SERVICES IN TWO NIGERIAN MILITARY HEALTH FACILITIES

This is to inform you that the above named research protocol, dated September, 2013; after a full review by the MOD Health Research Ethics Committee has been approved.

2. The approval is for a period of one (1) year and dates from 14th February, 2014 to 13th February. 2015.

3. Kindly note that the **National Code of Health Ethics** requires you to comply with all institutional guidelines, rules and regulations, and with the tenets of the **Code**, including ensuring that all adverse events are reported promptly to MODHREC. No changes are permitted in the research protocol without prior approval by the MODHREC, except in circumstances outlined in the **National Code**.

4. The MODHREC reserves the right to conduct compliance visits to your research site(s) without prior notification.

5. Thank you.

Dr. J.N.Ugwuegade
Chairman
MOD Health Research Ethics Committee

MINISTRY OF HEALTH, KADUNA STATE

All Communications to be Addressed to:
THE HON. COMMISSIONER
Quoting Reference and Date
Tel: (062) 248084
(062) 248252

Independence Way,
P.M.B. 2014,
Kaduna,
Kaduna State, Nigeria.

MOH/ADM/744/VOL.I

23rd January, 2014

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REVIEW AND APPROVAL OF STUDY PROTOCOL

I have been directed to convey the Ministry's approval to Dr. Cheshi Fatima (NFEELTP) a resident student from Ahmadu Bello University Zaria , to conduct a research on the topic: " Assessing the Linkage Between Prevention of Mother- To – Child- Transmission of HIV and Adult ART Services in Nigerian Military Health facilities.' For the award of Masters in Public Health (field Epidemiology).

2. It is expected that necessary assistance be accorded him /her in the process of the research please.

3. However, it is mandatory for the researcher to submit a copy of his /her finding(s) to the office of the Honourable Commissioner, Ministry of Health as soon as it is conluded.

4 Accept the assurances of the Honourable Commissioners highest regard.

F. A. Kurah
Secretary, Ethical Committee