FACTORS INFLUENCING ACCESS TO ANTENATAL CARE AND PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICES AMONG NOMADIC WOMEN IN MAKARFI LGA, KADUNA STATE, NIGERIA

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A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL,
AHMADU BELLO UNIVERSITY, ZARIA

IN PARTIAL FULFILMENT FOR THE AWARD OF MASTERS IN PUBLIC HEALTH (MPH) VETERINARY EPIDEMIOLOGY DEGREE

DEPARTMENT OF COMMUNITY MEDICINE,
FACULTY OF MEDICINE,
AHMADU BELLO UNIVERSITY, ZARIA

DECEMBER, 2014

ATTESTATION

I attest that the work in the thesis entitled FACTORS INFLUENCING ACCESS TO ANTENATAL CARE AND PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICES AMONG NOMADIC WOMEN IN MAKARFI LGA, KADUNA has been performed by me in the Department of Community Medicine under the supervision of Dr. E. C Okolocha and Prof J.K.P Kwaga. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at any university.

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Name of Student	**Signature**	**Date**

CERTIFICATION

This thesis entitled FACTORS INFLUENCING ACCESS TO ANTENATAL CARE AND PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV SERVICES AMONG NOMADIC WOMEN IN MAKARFI LGA, KADUNA by ABUBAKAR Umakaltume meets the regulations governing the award of the degree of Masters of Public Health in Field Epidemiology of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to my husband (Tanimu Kere Ahmed), my children (Izzildeen, Sakina and Nana) and my parents.

ACKNOWLEDGEMENT

This work would not have been possible without the inestimable assistance and contributions of so many people. My profound gratitude goes to my supervisors , Prof.J.K.P Kwaga and Dr. E.C Okolocha who both patiently guided me through getting this work done, I acknowledge their effort and contributions.

I specially want to thank the Nigerian Field Epidemiology and Laboratory Training Programme (NFELTP) and Centers for Disease Control and Prevention (CDC) for the wonderful opportunity to pursue this program. I acknowledge the resident advisor Dr. Patrick Nguku for his immeasurable support, and the facilitators: Prof. Kabir Sabitu, Dr. Junaidu Kabir, Dr. Aisha Abubakar, Dr. Endie Waziri and a host of others too numerous to mention for their patience and commitment to developing our talents.

I also specially thank Assoc. Prof. Gabriele Poggensee for being a true mentor and for her inmmeasurable support.

I would like to appreciate my field supervisors in CDC, Dr. Ibrahim Dalhatu and Dr. Lora Davis for their support and guidance; and Dr. Ibrahim Jahun for his valuable contributions to my work.

I sincerely appreciate my Director, my boss Dr. Joseph Nyager and other staff of the Federal Department of Livestock and Federal Ministry of Agriculture for the opportunity to pursue my studies.

I acknowledge all my colleagues in cohort 4 for making my time in the programme a memorable experience.

I cannot forget to appreciate the Makarfi LGA Department of Primary Health Care staff and the Fulani Ardos for their co-operation.

Finally, profound gratitude goes to my husband (Tanimu Kere Ahmed) and children (Izzildeen, Sakina and Nana), my parents, my siblings and my in-laws for their encouragement and moral support.

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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Anti-retroviral Therapy
CDC	United States Centers for Disease Control and Prevention
CHC	Comprehensive Health Center
GPS	Geographical Positioning System
HF	Health Facility
HIV	Human Immunodeficiency Virus
HCT	HIV Counselling and Testing
LGA	Local Government Area
MTCT	Mother-to-Child Transmission
NHMIS	National Health Management Information System
NSBAs	Non Skilled Birth Attendants
PHC	Primary Health Center
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PNC	Post Natal Care
RI	Routine Immunization
SIV	Simian Immunodeficiency Virus
STI	Sexually Transmitted Infection
TBAs	Traditional Birth Attendants
UNAIDS	United Nations Joint Programme on HIV/AIDS
WHO	World Health Organisation

SUMMARY

Nomads are an under-served population with little or no access to health care mainly because of their geographical locations which are often hard to reach, their movement from place to place and cultural beliefs. Thousands of children in Nigeria are infected with HIV through their mothers annually. The success of PMTCT of HIV depends on the effectiveness of ANC and will require closing gaps in geographical coverage and accessing and utilization of the services. This study examines the factors that influence access to ANC and PMTCT services by determining the knowledge, attitude and practices of nomadic women of reproductive age and traditional birth attendants on HIV, ANC and PMTCT within nomadic settlements in Makarfi LGA. I assessed services provided by health facilities.

A cross-sectional study was conducted using interviewer- administered, pretested semi-structured questionnaires for nomadic women and TBAs; and a checklist for health facilities. A minimum sample size of 366 was arrived at for the nomadic women and distributed proportionately to the selected wards.

A total of 375 women between 13-45 years were interviewed, 83.6% between 15-34 years, 98% married, 94.5 % had no formal education, 80% unemployed and 36% had been pregnant at least 5 times. Sixty three percent were aware of HIV, 97% had poor knowledge of HIV and MTCT. Primary education had significant association with good knowledge of HIV (OR=42.4 ; 95% CI=9.6 – 200; p= <0.01). Seventy two percent had attended ANC at least once, 25% had adequate ANC attendance (≥4 visits with skilled attendant). Eighty six percent delivered babies at home alone,7% delivered with TBAs. Less than 1% tested for HIV. Primary education (OR=8 ; 95% CI= 1.1-161.6; p= 0.02) and low parity (OR= 2.1; 95% CI= 1.2-3.6; p= <0.01) had

positive effect on ANC attendance. All TBAs had poor knowledge of HIV and PMTCT and engaged in unsafe practices (no gloves, unsterile materials). All health facilities were providing ANC and delivery services with 60% providing PMTCT services.

ANC, delivery and PMTCT services are under-utilized due to lack of education, poor knowledge of HIV, cultural barriers and some health facility related factors since even those found to have adequate ANC attendance lacked basic knowledge of HIV and prevention. There is an urgent need to sensitize and educate this population on HIV and its prevention and the need to utilize available health services. This can be achieved through outreach services while involving community members. There is also need for health worker trainings to improve the quality of services.

Key Words: Human Immunodeficiency Virus, Antenatal Care, Prevention of Mother-To-Child Transmission, Nomads, Makarfi-Nigeria

CHAPTER ONE - INTRODUCTION

1.0 Introduction

1.1 Background

The Nomads are a population that have no permanent dwelling, but move from place to place usually seasonally and often follow a traditional route according to the state of pasture. However, those in some areas have become more settled remaining in dwellings for years at a time.[1] The population of nomads in Nigeria was estimated at 9.3 million in 2007, this is about 6.8% of the country's population.[2] Nomads lag behind in accessing public services especially health services, even though they contribute significantly to the national Gross Domestic Products (GDP) through livestock rearing.[3] For this reason, the health status of nomadic populations is often poor and they tend to be prone to some infectious diseases such as vaccine preventable diseases, tuberculosis, respiratory and gastrointestinal infections and sexually transmitted infections.[4]

Difficulty in delivering health services to nomads results from the nature of their dwellings which are often hard to reach. As much as efforts have been made both nationally and internationally, immunization coverage which is an important indicator for health service delivery shows that there is no access to the nomads of Sub-Saharan Africa. And they may form clusters of susceptible population in the event of outbreaks.[5] This results from inaccessibility due to distance or absence of services, mistrust, preference for traditional medicines and low prioritization of health in nomadic communities.[6] Several studies have shown that migrating populations are at higher risk for HIV compared to stable populations.[7] An explanation for this may be as postulated by Decosas,[8] that HIV risk is frequently associated with family and social disruptions resulting in higher likelihood of migrants engaging in risky sexual behaviours.[8]

However, only few studies have examined the prevalence of HIV infection in specific populations like the nomads.[9]

The HIV/ AIDS pandemic has resulted in devastation to families ranging from untimely death to medical, financial and social burdens. It was estimated by UNAIDS that 35.3 million people worldwide were living with HIV in 2012, resulting in 1.6 million AIDS deaths in the same year.[10]

Sub-Saharan Africa accounts for 71% of people living with HIV. Africa has 88% of the burden of HIV infected children in the world and it is suggested that 90% of infected children in sub-Saharan Africa got infected through Mother-to-child Transmission of HIV.[10,11]

In Nigeria approximately 240,000 people died from AIDS in 2012.[12] MTCT of HIV accounts for a large percentage of infections and Prevention of Mother- to- Child Transmission (PMTCT) coverage in Nigeria falls far below the targeted universal coverage of 80%, and achieving virtual elimination of MTCT by 2015 remains far-fetched if access to the services is not improved upon.

One of the main modes of HIV transmission in Nigeria is MTCT accounting for about 75,000 babies born with HIV each year.[13] Despite Prevention of Mother To Child Transmission (PMTCT) services in Nigeria starting in 2001,[14] although initially at a low rate, it rose to about 22% in 2009, but declined to less than 20% in 2012,[10] This falls short of the universal access targets of 80% coverage. PMTCT is one of UNAIDS priority outcome areas and they have called for the virtual elimination of MTCT by 2015. Virtual elimination means less than 5% of children born to HIV positive mothers are infected. They indicated that to achieve this will require closing gaps in geographical coverage, improving efficacy and quality, and demand for PMTCT services.[15]

The prevalence of HIV infection among the nomads of Northern Nigeria is unknown and very few works have been done in the area of HIV in nomads in the country. Habib and Jumare[9] however, explored cultural practices and factors among the nomadic Fulani that may influence HIV transmission, vulnerability to infection, sustainability and challenges to treatment access. They did this by studying three cases of HIV infected individuals over a period of time; From their study, patient interviews gave an insight on living and coping with HIV.[9] They found that mobility of the nomadic community limits opportunities for counselling, testing and diagnosis, as well as HIV-related care, access and maintenance. Certain cultural practices such as *sharo* (test of endurance/ manhood, where the young male is flogged until bleeding wounds are created), among the Fulani have a potential for HIV transmission.[9] The authors recommended that basic HIV- related services like risk-reduction education and methods, counselling and testing, ART, access to laboratory tests be taken to nomadic communities using unconventional methods like mobile units and extension services, treatment supporters linked to neighbouring health facilities.[9]

The PMTCT program started in Nigeria in 2001 in 6 tertiary health facilities with the goal of contributing to the reduction of incidence of HIV/AIDS through Mother to Child Transmission.[16] The national PMTCT targets that by 2015, at least 90% of Pregnant women should have access to quality HIV testing and counselling, all HIV positive pregnant women and HIV exposed infants should have access to more efficacious ARV prophylaxis, HIV positive pregnant women have access to quality infant feeding counseling and all HIV exposed infants have access to early infant diagnosis (EID) services.[17]

Even though the prevalence of HIV among the nomadic population is unknown,[9] this study intends to look at the Nomads bearing in mind the nature of their settlements, to see how

accessible health services are to the pregnant nomadic women. If it is easily accessible, are they utilizing the services or how ready are they to utilize services provided? The study will assess their knowledge of ANC, HIV/ AIDS, PMTCT and access to services.

1.2 Problem Statement

Transmission of HIV from Mother-to-Child in utero, at delivery and during breast feeding, serves as an important means of spread of the infection. In 2012, a total of about 1.6 million deaths were recorded as a result of AIDS, of which 210,000 (13%) were in children.[10] Africa has 87% of the burden of HIV infected children globally and it is suggested that 90% of infected children in sub-Saharan Africa got infected through Mother-to-Child Transmission of HIV (MTCT). About 430,000 children in Nigeria are living with HIV, many of whom got infected through their mothers.[12] It has been estimated that without treatment, one-third of infants living with HIV will die before their first birthday and half will die before their second birthday.[18] In the year 2000, about 200,000 children under the age of five died from AIDS acquired through MTCT. The rate of MTCT in Nigeria was 24.5% in 2011,[17] although a study done in 2006 found the rate of MTCT to be up to 45% among ART-naïve HIV positive pregnant women.[19] The PMTCT Universal Access Target is 80% coverage,[13] but coverage in Nigeria is less than 20%.[10] The challenges faced by the National PMTCT program include the fact that: Majority (65%) of deliveries are outside health facilities[16] due to limited access to the facilities, stigma, lack of family support and poor knowledge; high mobility of some populations like the nomads who happen to be the most under-served with regard to health services; geographical location of nomadic settlements in remote areas, educational levels, cultural beliefs, socioeconomic status and level of exposure and accessibility and utilization of ANC and PMTCT services by nomads.

Although efforts have been made to integrate HIV screening into ANC services for the purpose of PMTCT, the above mentioned challenges make it difficult to achieve substantial results.

There have been very few studies on nomads with regards to HIV and PMTCT, therefore more research in this area is necessary in order to have better insight of how knowledgeable the nomads are on HIV and its prevention, the factors that influence access to ANC and subsequent PMTCT services, identifying gaps in delivering these services to the nomadic population and the ways to address these gaps. Information gathered from this study will provide a better understanding of existing factors that influence access and utilization of ANC and PMTCT, and would aid in channeling efforts in improving ANC uptake and PMTCT coverage.

1.3 Justification

Nomads (there are six nomadic groups in Nigeria: The Fulani with a population of 5.3 million, Shuwa - 1 million, Buduman -35,001, Kwayam -20,000, Fishermen -2.8 million and Badawi - population unestablished) are a mobile population staying in remote areas that are often hard to reach (in terms of health services, education, basic infrastructure, etc).[1] A study done by Bilenko[20] in Israel in a semi-nomadic Bedouin Arab population, found 31.8% received ANC before establishing local Maternal and Child Health Clinic. Another study[21] in southwestern Nigeria among migrant Fulani, found that only 2.1 % of women received at least two doses of Tetanus Toxoid and 2.6% of children below 24 months received full immunization. Low utilization of PMTCT services is a common feature of low and middle income countries.[22] WHO[23] reported that 33% of HIV positive women who were pregnant received antiretroviral prophylaxis to prevent MTCT in Sub- Saharan Africa in 2007, although there were wide variations among countries. PMTCT is a facility based intervention and the opportunity of accessing the services only arise when pregnant women interact with the health system usually

through the antenatal clinic. This serves as a barrier to utilization of PMTCT services, as not all pregnant women use antenatal care services.[24] Through a systematic review, factors that affect the utilization of antenatal care in Africa, Asia, Latin America and the Caribbean were documented in twenty eight studies. The authors found that some of the barriers to the utilization of ANC include: Low educational level, high parity, short intervals between pregnancies, single motherhood, age below and above the thirties, scarcity of village health care workers and absence of accessible antenatal care services, long waiting times at the clinics, long distances to the ANC facilities with physical barriers such as uncomfortable means of transport, poor roads or big rivers, unaffordable transport costs and costs of other laboratory tests, poverty, household economic insecurity and gender disparities, negative attitudes of the health care workers, and perceived lack of direct benefit from ANC especially when not experiencing any problems.[25] Osumba[24] 2009, stated that: ANC is an important entry point to the health intervention aimed at prevention of mother-to-child transmission of HIV.

From this we assume that in Fulani communities in Kaduna State there is limited or no access to ANC and PMTCT services and access to healthcare is usually to Primary Health Centers some of which lack facilities for HIV testing.

Little attention is paid to nomads in terms of healthcare delivery except for the recent focus on this group as a result of Global Polio Eradication Initiative (NSTOP activities). There have been no studies on HIV in terms of care, infection prevention and delivery of antiretroviral therapy (ART) to this population. There is a need to look at this population with respect to HIV prevention of which PMTCT is a major part.

1.4 Research Questions

1. Do nomadic women in Makarfi LGA have knowledge of ANC, HIV and PMTCT?
2. What is the attitude of nomadic women in Makarfi LGA towards ANC and HIV/ AIDS?
3. Do nomadic women utilize ANC services?
4. Do the Traditional birth attendants (TBAs) in nomadic settlements have knowledge of safe delivery practices and HIV/ AIDS including PMTCT?
5. Are there factors that affect access to ANC and PMTCT? If yes, what are these factors?

1.5 Study Objectives

1.5.1 General Objective

To determine factors influencing access of nomadic women to ANC and PMTCT services in Makarfi LGA, Kaduna State, Nigeria.

1.5.2 Specific Objectives

1. To assess knowledge of nomadic women on ANC, HIV/AIDS, MTCT and PMTCT.
2. To determine the attitude of nomadic women towards ANC, HIV/AIDS and PMTCT services.
3. To determine the practices of nomadic women in antenatal care.
4. To assess nomad Traditional Birth Attendants (TBAs) knowledge and practice in safe delivery practices and HIV/AIDS including PMTCT.
5. To identify health facility-related factors affecting access to ANC and PMTCT including availability of services, distance, nature of roads and transportation.

CHAPTER TWO – LITERATURE REVIEW

2.0 Literature Review

2.1 Sources of Literature

Most of the literature regarding this study were accessed via electronic means and multiple search engines were employed. They include Pubmed, HINARI, Google Scholar and African Journals On Line (AJOL).

2.2 Historical Perspective of HIV

HIV is thought to have originated from Simian immunodeficiency viruses (SIV) transmitted from nonhuman primates to humans as early as the 1930s. In Uganda and Tanzania in 1980 a new syndrome called Slim Disease was reported by doctors and was thought to be on the rise at the time. Slim Disease was later found to be HIV/ AIDS. This event was closely followed by the description of the first cases of Acquired Immune Deficiency Syndrome (AIDS) in homosexual men in North America, following reports to the Centers for Disease Control (CDC) on Kaposi's sarcoma and *Pneumocystis carinii* pneumonia in 1981. Later on cases from 1978 and 1979 were diagnosed retrospectively and the first HIV case in a Haitian immigrant was diagnosed shortly after. By this time HIV was believed to be a disease found only in homosexual men, intravenous drug users and immigrants in the United States. By 1983, patients from sub-Saharan who were admitted to hospital in Brussels were diagnosed with AIDS. These patients did not have any of the risk factors known for AIDS at the time and this provided the first evidence that AIDS is transmitted through heterosexual intercourse. In this period, the HIV was identified as the causative agent for AIDS. The WHO reported in 1984 that 1-5% of adults in Uganda, Rwanda, Burundi, Tanzania, Zambia, Zimbabwe, Ivory Coast, Burkina Faso, Togo, Cameroon and Congo Brazzaville. Then by 1985, the first antibody test to detect HIV infection is approved by the FDA

of the United States of America. At least one case of HIV/AIDS had been reported from every region in the world in 1985, and by then, Nigeria also diagnosed its first two AIDS cases. In 1989, WHO reported that more than 10% of adults in Zambia and Zimbabwe were infected with HIV making them the countries with the highest HIV prevalence rates in the world. However, by 1994 the HIV epidemic had shifted to Southern Africa and as of 2001, majority of countries in sub-Saharan Africa had a generalised HIV epidemic. It was estimated in 2003 that globally between 34 to 46 million people were living with HIV/AIDS.[26] The number of people living with HIV seems to have remained within the estimated range in 2003, since it was estimated to be 35.3 million in 2012.[10]

2.3 Definitions

Nomads

They are persons with no settled home who move from place to place in search of pasture, but usually return to their original location from time to time. There are different categories of nomads they include: pastoral nomads who own livestock , hunters and craftsmen. The population of pastoral nomads worldwide was estimated to be 30–40 million in 1995, and majority are found in central Asia and sahel region of West Africa.[27] Most pastoral nomadic groups have a fixed seasonal pattern of movement and live in makeshift shelters.[28] Among the pastoral nomads the fulani are believed to be the largest nomadic group in the world and are mostly found in West Africa.

Human Immunodeficiency Virus infection (HIV)

This is infection with the virus (retrovirus) which causes AIDS leading to deppression of the immune system allowing life-threatening opportunistic infections and cancers to thrive.[29]

Antenatal Care (ANC)

ANC is the care a woman receives from skilled attendants during pregnancy, it involves monitoring the woman and the unborn child. ANC requires essential interventions which include identifying and managing potential obstetric complications such as pre-eclampsia, tetanus toxoid immunisation, intermittent preventive treatment for malaria during pregnancy (IPTp). It also entails prevention and management of infections including HIV, syphilis and other sexually transmitted infections (STIs).[30]

ANC Standard (adequate ANC)

It is required that every pregnant woman has at least 4 ANC assessments by a skilled attendant or under the supervision of such an attendant. The visits should entail as a minimum all the interventions outlined in the WHO antenatal care model and this should commence as early as possible in the first trimester.[31]

Mother-to-Child Transmission (MTCT) of HIV

Is a situation where an HIV positive woman can transmit the virus to her child during pregnancy, labour and delivery, and during breastfeeding. It has been found that the risk of an HIV positive mother transmitting the infection to her baby is 20-45% in the absence of intervention, the rate during pregnancy may be 5-10%, at labour and delivery 10-20% and 5-20 % during breast feeding.[32]

Risk factors for Mother-to-child transmission

There are several factors affecting the rate of mother-to-child transmission. These have been grouped as: viral factors, maternal factors, obstetric factors, foetal and breast feeding factors.[33] Viral factors include: high maternal viral load and viral characteristics; Maternal factors include:

advanced disease from HIV to AIDS, HIV infection acquired during pregnancy or breast feeding, STIs; Obstetric factors include: Vaginal delivery, rupture of membranes for more than 4 hours and prolonged labour; Foetal factors: pre-maturity; Breast feeding factors comprise of: mixed feeding, breast infections like mastitis, breast abscess, cracked nipples and prolonged breast feeding.[33]

Prevention of Mother-to-Child Transmission (PMTCT)

It has been recommended that to reduce the rate of MTCT of HIV, several interventions which involve the use of ARVs either as prophylaxis to the pregnant mother or as therapy during pregnancy, labour and breast feeding should be in place. If the mother is not on ARVs during the period she is breast feeding, the baby should be given ARVs as prophylaxis throughout this period until one week after weaning. If breast feeding is not possible, infant formula is an alternative. Obstetric procedures such as early artificial rupturing of membranes, instrument aided deliveries, episiotomy should be avoided, rather elective caesarian section should be considered.[33] These are the strategies employed by the PMTCT program which is a global intervention initiated by the United Nations (UN). [34]

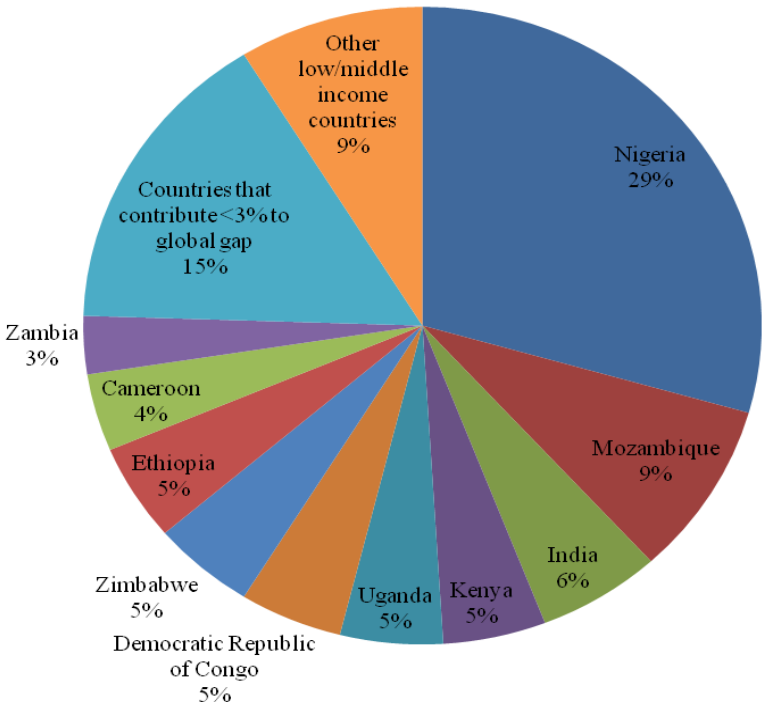


Figure 1: Percentage distribution of countries contributing 90% global gap in reaching women with PMTCT in 2008[35]

2.4 Conceptual Framework of Study

Access to ANC and PMTCT (healthcare)

Access to healthcare in general including ANC has various dimensions which include: accessibility (geographical access), acceptability, availability, affordability and adequacy. Access to healthcare is a relationship between community (user) factors and health facility factors, and has been defined as the opportunity or freedom to make use of health services when the need for care is perceived.[36,37] Levesque[37] views access as a determinant which allows people to take the steps that enable them to come in contact with and obtain health care. Information is said to be crucial to accessing healthcare,[36] thus the quality of information and the manner in which this information is relayed to users is important in influencing access to services. In order to achieve good access, there must be a fit between demand and supply of services.

Accessability:This includes geographic accessability like the physical distance between health facilities and those that require the services, nature of transportation and the time it takes to get to the point where services are rendered.[38] While, acceptability involves social and cultural factors that determine the possibility of people accepting services.[37] However, acceptability does not directly result in utilization of services. Awareness of the availability of services is important and the decision to utilize is determined by the quality of information received from the health providers.[36] Availability of health care encompasses all the factors that relate to the actual existence of a particular service within the reach of the user, it also involves aspects of user-friendliness which is closely related to adequacy (the quality of services delivered). From a user point of view, if services are available, the next question that comes to mind is: are the services affordable?

Affordability refers to the direct and indirect costs of healthcare in relation to the ability of the user to pay for services .[37]

In this study the researcher will adapt the conceptual framework which was originally developed by Theide[36] and adapted by Osumba.[24]

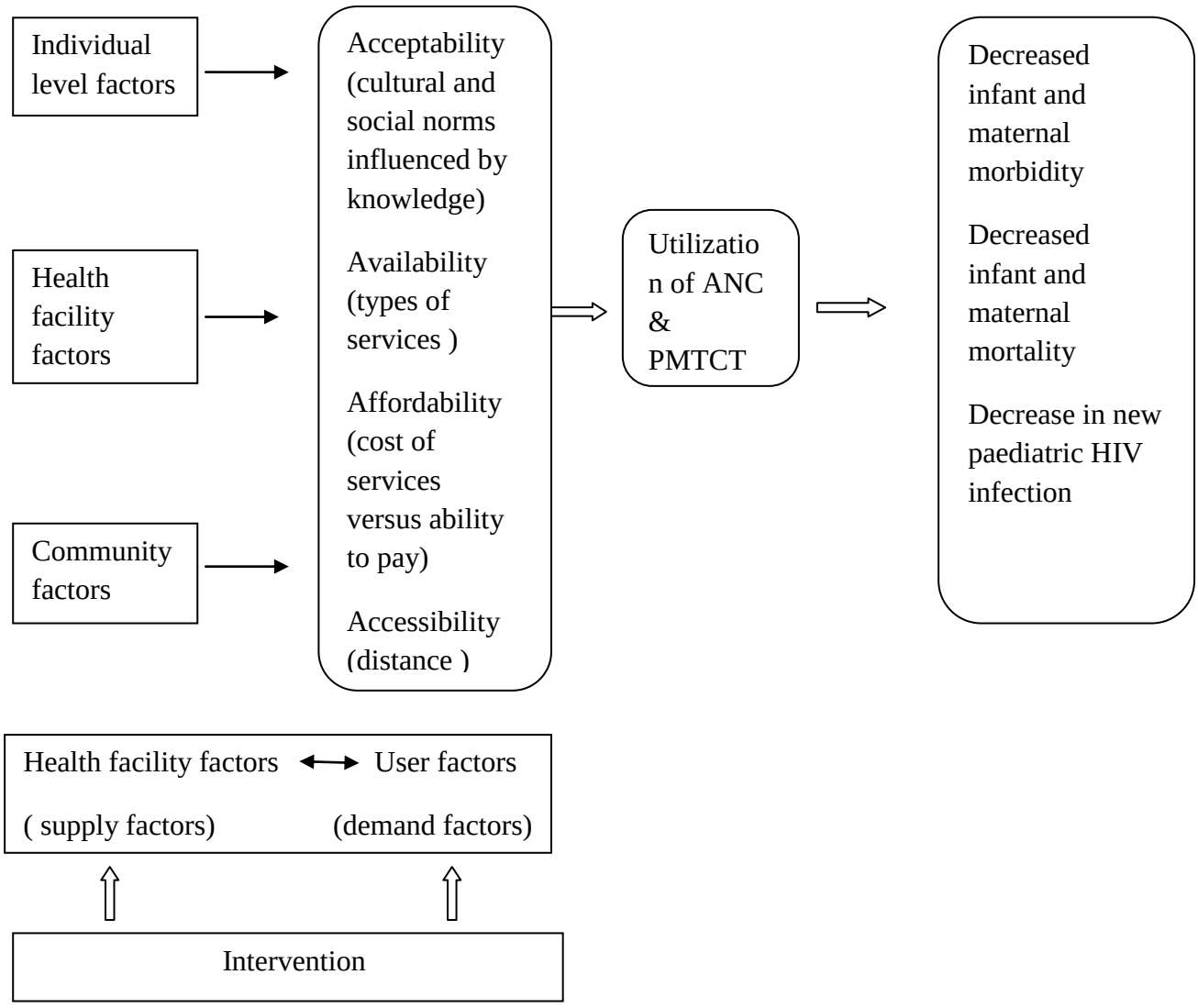


Figure 2: Conceptual framework of the study adapted from Theiede[36]

2.5 Epidemiology of HIV

Global HIV

About 35.3 million people worldwide were estimated to be living with HIV/ AIDS at the end of 2012, 3.3 million (9.3%) of which were children. HIV has led to 1.6 million AIDS related deaths of which 210,000 occurred in children. In 2012, there were 2.3 million new infections with 260,000 of these new infections occurring in children.[10] The majority of people living with HIV are in developing countries, about 71% of which live in sub- Saharan Africa.[39,40] HIV has been found in nearly every nation on the planet due to rapid movement of people around the globe . The pandemic has spread to more than 150 countries on 6 continents.[40] The HIV is not age, gender, race or socio-economic status specific but is a major cause of mortality in young adults. Most infections are acquired heterosexually, even though in some countries injecting drug users (IDU), men having sex with men (MSM) and perinatal transmission- in-utero, during delivery and breast feeding, make up a significant fraction of infections.[39,40]

HIV in Sub- Saharan Africa

There were about 25 million people living with HIV in Sub- Saharan Africa as at 2012, 2.9 million of this being children. An estimated 1.6 million new infections occurred, 230,000 of which were in children within the year. Also 1.2 million deaths due to AIDS was reported.[10] Of the adult population living with HIV in Sub-Saharan Africa, 60 % are women and 90% of HIV positive children were infected by their mothers. The relatively high proportion of MTCT in Sub-Saharan Africa is due to high rates of heterosexual transmission, higher prevalence of HIV in women of reproductive age, high total fertility rate, prolonged breastfeeding culture and poor access to PMTCT interventions.[33]

HIV in Nigeria

In Nigeria, 3.4 million people are living with HIV, 50% of which are women, 430,000 are children 0-14 years of age. About 260,000 new infections were reported in 2012 with 59,000 occurring in children. Deaths due to AIDS was estimated in the same year at 240,000.[12]

HIV in Kaduna

The prevalence of HIV in Kaduna state in 2010 was 5.1%.[41]

2.6 Review in Line With Specific Objectives

2.6.1 Knowledge of HIV and PMTCT among women of reproductive age

Worldwide it was found that less than 30% of women of reproductive age have correct knowledge of HIV.[42] Women in different parts of the world have different levels of understanding of HIV and various studies have been done to determine the knowledge of women of reproductive age on HIV. Findings from a survey done across some developing countries showed that two-thirds of young women (15-24 yrs) lacked understanding of HIV transmission.[42]

There is a wide variation in terms of knowledge of HIV depending on the population being examined, HIV knowledge ranges from poor to good. A facility-based study[43] in Uganda and a community-based study in Uganda and Tanzania[44] found the knowledge of MTCT to be high, while a study done among semi-nomadic population in Somalia found the knowledge of HIV to be poor with less than half of the study population knowing the mode of transmission.[45] In Nigeria majority of women of reproductive age have heard of HIV but only about half the female population know about HIV prevention methods, and over 50% of women of reproductive age know methods of PMTCT.[46] A hospital- based (ANC clinics) study in Nigeria showed women

to have relatively high knowledge of HIV[47] while some other studies also in Nigeria showed consistent poor knowledge[48,49] regardless of whether or not they were hospital or community based and regardless of whether study was done in urban or rural areas. These studies done among ANC attendees also showed specific knowledge of MTCT to be poor[47,49]

2.6.2 Attitude towards HIV

Willingness to test for HIV varies widely depending on several factors. A high willingness to be tested is shown in some studies. A study in Uganda showed high willingness to test for HIV regardless of location whether urban or rural, it also showed a positive association between being educated and willingness to test for HIV.[43] This is similar to findings in the study in Uganda and Tanzania[44] where willingness to test for HIV was as high as 90%; another study[45] among semi-nomadic population in Somalia found willingness to test to be about 58%.

2.6.3 Practices

Practices in terms of ANC

As with knowledge and attitude, there is a wide variation in terms of practice in ANC and HIV. It ranges from what is thought to be poor practice to what is considered good practice. A study in Israel among a semi-nomadic population found ANC attendance to be 31.8%,[20] while another study in Southwestern Nigeria among nomadic Fulani found ANC attendance to be extremely low, 2.1%.[21]

Practice of HIV testing

The practice of HIV testing is mostly poor, this is demonstrated in several studies. A study[50] in Vietnam found the rate of HIV testing among ANC attendees to be about 53%. While another

study in Uganda and Tanzania found that only 10% and 14% of participants respectively, had been tested for HIV.[44]

2.6.4 HIV knowledge among TBAs

A great proportion of deliveries in Africa occur outside health facilities usually in the presence of TBAs. Exposure to blood and other body fluids occur during child birth so it is necessary for TBAs to have good knowledge of HIV transmission and prevention to reduce the risk of infection to themselves, to mothers and their children through safe delivery practices. Knowledge of HIV among TBAs vary from place to place. The study done in Uganda and Tanzania[44] showed that TBAs had very poor knowledge of MTCT and prevention. However, studies in Nigeria found awareness of HIV among TBAs to be quite low except for a study in Lagos[51] which found the awareness of HIV to be high compared to the knowledge of PMTCT which was very poor.

2.6.5 Health facility related factors affecting ANC and PMTCT services

A literature review[52] done for WHO categorized factors affecting access and utilization of PMTCT services into three groups: health service barriers, individual level barriers and societal level barriers. The health facility related barriers cited in this review[52] include: short counselling time and lack of attention to social issues, information gaps, lack of follow up on patients, consent and confidentiality issues, poor attitude of health workers, fear of health workers, lack of trust in the health service provider, discrimination at health facilities, judgemental and insensitive providers, poor communication between client and health worker, distance to health facility, nature of roads and mode of transportation resulting in physical/ geographic inaccessibility, long waiting time, multiple clinics, need for frequent visits, delayed laboratory results, insufficient staff to pprovide services and finally, difficulty in finding staff during follow up visits. Another

study done in Ethiopia[53] found similar factors affecting the utilization of PMTCT services in addition to absence of doctors, absence of services and where the service was available, some clients could not afford the fee. Thus reflecting availability and affordability.

2.7 Review of Study Design and Method among Nomads

Very few studies have been done among the nomads. However, among a semi-nomadic population in Somalia, a study was done on knowledge and attitudes about HIV/ AIDS using interviewer administered questionnaires in a community-based cross-sectional survey.[45]

The questionnaires had sections on sociodemographic information, knowledge and attitudes to HIV/ AIDS. [45] All inhabitants present on the day of the survey were included. A six- item scale on knowledge of HIV was used in grading and a score was assigned to each correct response. In this study by Abdi,[45] good knowledge was defined as having a score of 4 and above while any score below 4 was considered to be poor knowledge.

2.8 Gaps in Knowledge

Little is known about the prevalence of HIV among the nomadic population[9] and little is also known about their knowledge of HIV and other health conditions and their attitude towards healthcare. There is low understanding of why nomads may not be accessing or utilizing healthcare services especially ANC and PMTCT as very scanty data exist on studies in this population especially with regards HIV and its prevention.[9]

CHAPTER THREE

3.0 Methodology

3.1 Study Area

The study was conducted in Makarfi, one of 23 LGAs in Kaduna State. Makarfi has an area of 541 km² with a population of 146,574.[2] The major ethnic groups are Hausa and Fulani. Makarfi has over 500 nomadic settlements with an estimated under five population of about 3,300.[54] Makarfi has a total of 46 health facilities: one secondary health facility (Makarfi General Hospital), 45 primary health centers among which 36 are public and 9 are privately owned.[55]

3.2 Study Design

A descriptive cross-sectional study was carried out.

3.3 Study Population

Nomadic women of reproductive age (13-49 years) living in Makarfi LGA. The standard recognized reproductive age bracket is 15-49 years but because the study population marry off young girls once they attain puberty, we decided to expand the range.

3.3.1 Inclusion criteria

Consenting women living in nomadic settlements who were of reproductive age who had children and the youngest child was under 5 years (U5) or women who were pregnant at the time of the study.

3.3.2 Exclusion criteria

Women who had been in the settlement less than 3 months and those outside the reproductive age or those who did not consent to participate in the study.

3.4 Sample Size

Formula for cross-sectional studies[56]

$$n = \frac{Z\alpha^2 pq}{d^2}$$

Where q =1- p

n = Minimum sample size desired

Z = Standard normal deviate at 95% confidence levels 1.96

P = 31.8% (ANC utilization in a semi-nomadic Bedouin Arab population)[20]

d = desired absolute precision 5% (0.05)

Therefore $\frac{1.96 \times 31.8\% \times (1 - 31.8\%)}{0.05^2} = 333$

n = 333

Adjusting for 10% nr

Where nr = non response rate $\frac{10}{100} \times 333 = 33.3$

Therefore 333 + 33 = 366

n = 366

Purposive sampling was done for the TBAs, all identified TBAs consenting to participate in the study were included.

3.5 Sampling Technique

A list of the *Rugas* in each ward was used to select the houses to be visited. A *Ruga* is a settlement that includes several households often ranging from 1 – 20 households. A household (HH) is made up of parents and the children, and possibly any member of the extended family living with them. This list was compiled during the Nomads outreach project as part of the Global Polio Eradication Initiative. During that activity the population of children under the age of five (U5) was recorded.

3.5.1 Multistage sampling

Stage 1: Selected 4 wards that had more nomadic settlements (≥ 50) out of 10 wards in Makarfi LGA

Stage 2: Randomly selected 56 Rugas by proportionate distribution according to the number of Rugas in each ward from the sampling frame using the research randomizer application.

Stage 3: Randomly selected households to be sampled in each Ruga, out of every 5 households, 4 were selected at random by balloting. This resulted in 4HH being selected in Rugas with 5 HH, 8 HH in Rugas with upto 10 HH and 12-16 HH being selected in Rugas with 15-20 HH.

Stage 4: Randomly selected one participant from each household.

The participants were selected from the households by balloting based on the criteria for inclusion (i.e., all consenting women of reproductive age, who had children and the youngest was U5 or women who were pregnant at the time of study). The first question that was asked in a selected household sought to know the number of women who were within reproductive age, who had children or were pregnant. These women were then made to ballot using pieces of paper

in which one *yes* and the rest with *no* were scribbled. The person who picked the paper with *yes* on it was chosen to participate in the study. If a person selected did not consent to participate, the balloting was repeated but the non-consenting individual was excluded in the balloting.

If no one was at home at the time of visit, the house (*Ruga*) was revisited after which if no one was met in the house, that house was abandoned and the next house on the list was selected. If a house visited did not have any individual who met the criteria for inclusion, the next house on the list was selected until the desired sample size was achieved.

Geographical Positioning System (GPS) readings were taken for the houses selected for the study to determine the distance between the houses and the health facilities providing services. The nature of roads, mode of transportation and the average distance to the nearest health facility was determined.

3.6 Data Collection

3.6.1 Questionnaire 1

Structured questionnaires developed by the researcher were administered by trained interviewers to respondents.

3.6.2 Field testing of questionnaire

The field testing was done in a nomadic settlement in Ikara LGA which is an LGA with similar characteristics, about 20 kilometers from Makarfi. The same criteria for selection of participants was applied (women of reproductive age who had children and the youngest was under 5 years or women who were pregnant at the time of the study). Only one settlement was visited for testing the questionnaire and 30 questionnaires were administered by interviewers. Following the

pre-test, the questionnaires were modified by restructuring some questions and introducing additional questions.

3.6.3 Questionnaire had 5 sections:

Section 1: Demographic Information

Section 2: Reproductive history

Section 3: Knowledge with regard to ANC, HIV/AIDS, MTCT and PMTCT services

Section 4: Attitude towards ANC, HIV/AIDS

Section 5: Practice with regard to ANC, HIV/AIDS and PMTCT

The questionnaire was developed in English, translated into Hausa for standardization before data collection and then finally translated back from Hausa to English.

3.6.4 Training of Interviewers

Interviewers were selected and a three-day training was conducted on:

i. Basic interviewer skills
ii. Administration of the data tools (i.e. questionnaires for the nomadic women and questionnaires for the TBAs)
iii. Basic ethics of research (option to participate or not, option to decline responding to some questions, not pressurizing participants to answer questions and not influencing response of participants)
iv. How to use androids to record GPS co-ordinates

3.6.5 Questionnaire 2

A semi-structured questionnaire (also translated to Hausa) was administered to TBAs who are patronized by the nomadic women to gather information regarding their knowledge and practices with regards to safe delivery services, HIV/AIDS including PMTCT.

3.6.6 Checklist for health facilities

A data tool in form of a checklist was used to gather information about:

- The location (GPS coordinates) of health facilities in the LGA
- The services they offer such as ANC, labour and delivery, PMTCT and immunization.

The tool was administered to the Director Primary Health Care in the LGA, as well as other healthcare workers in the various health facilities. One PHC in each of the sampled wards was chosen to determine the services available and estimate the distance from the sampled nomadic settlements, some additional PHC were also sampled.

3.7 Data Management

The study database was created and data was entered into Epi-Info version 7.1.2.0 developed by CDC. The data was reviewed, checked for inconsistencies and cleaned.

3.8 Data Analysis

The analysis was done using Epi –Info version 7. Univariate analysis for frequencies and proportions was done. Odds ratios and p-values were determined to investigate the association of identified factors and knowledge of HIV and ANC utilization.

3.8.1 Scores were derived and defined for knowledge

3.8.1.1 Classification of grading for nomadic women

Knowledge scores range from 0-14 for nomadic women: A 14-item scale was used to determine knowledge on HIV/AIDS, MTCT and PMTCT. A score is derived when correct knowledge of HIV transmission and prevention, MTCT or PMTCT is attained. A score of ***1*** was assigned for every ***correct*** response, and ***0*** was assigned for a ***wrong response*** or a response of ***I don't know***. A score of above 60% of 14 was considered as good knowledge while scores below 60% were considered as poor knowledge, this was adopted and modified from a previous knowledge and practice study on Prevention of Mother-to-Child Transmission of HIV done in Lagos, Nigeria among TBAs,[51] 0-8 were categorized as poor knowledge while scores of 9-14 were considered good knowledge.

3.8.1.2 TBA knowledge scoring

A seven-item scale was used with scores of 0-4 classified as poor knowledge; and 5-7 as good knowledge.

Variables for knowledge include:

Knowledge of HIV transmission:

- Sex with infected
- Sharing of sharp objects like razors etc
- Contact of infected blood with broken skin or mucose membrane or transfusion

How HIV positive can avoid infecting others:

- Use of condoms
- Avoid sharing sharps
- Adhering to ARVs

How HIV negative can avoid getting infected:

- Abstinence
- Being faithful to a negative partner
- Condom use
- Avoid sharing of sharps

How mother-to-child transmission occurs:

- During delivery
- In utero
- Breast feeding
- Prevention is through PMTCT services

ANC-how to ensure baby is born healthy

Variables for attitude:

- ANC benefits
- Interest in ANC
- Attitude of HIV positive person in their community
- Effect of HIV infection on positive person in their community
- Willingness to be tested for HIV

Variables for practice:

- ANC utilization
- Where to go for ANC
- Where do you go to deliver baby
- Ever been tested for HIV
- Where do you go when sick

*ANC utilization - The WHO standards for maternal and neonatal care considers at least four antenatal care assessments by a skilled attendant as adequate, this should as minimum requirement include all interventions outlined in the new WHO antenatal care model and be spaced at regular intervals throughout pregnancy commencing as early as possible in the first trimester.[31] Based on these standards, we categorized the number of visits by respondents in the study and considered anyone with at least four visits as utilizing ANC.

3.9 Ethical Considerations

3.9.1 Ethical clearance

The proposal for the study was submitted to the Kaduna State Ministry of Health for approval by the ethical committee on research. There after, ethical clearance was granted before commencement of the study.

3.9.2 Informed consent

The study was explained clearly to each participant and they were given the option to participate or not. Those who chose to participants were informed that there are minimal risks or benefits in partaking in the study. They were also made aware of the fact that they could drop out of the study at anytime. Written consent was obtained from all participants in the study. Those that agreed to be part of the study were required to sign the consent forms, and the participants who could not write their signature had to thumbprint in the presence of a witness.

3.9.3 Confidentiality

Identification numbers were assigned to each questionnaire to ensure confidentiality and no names were recorded to avoid being able to trace any questionnaire back to a respondent. Also,

participants were interviewed seperately in seclusion to ensure their privacy. The study database was saved on a password protected computer which only the researcher had access to.

3.10 Limitations

i. Although the initial intention was to use female interviewers we ended up using male interviewers because it was difficult to recruit women that could partake in the process and be effective. However, we came across a few participants who were not willing to be interviewed by men in such situations the author had to conduct the interviews.

ii. Most of the participants were illiterate and could not readily tell us their age so the age recorded were estimates.

iii. We could not determine the stage of pregnancy for those participants that were pregnant at the time of the study, so to determine adequacy of ANC visits we had to exclude them.

CHAPTER FOUR

4.0 Results

Response rate was 100%. Data collected from three hundred and seventy-five questionnaires administered to nomadic women of reproductive age in Makarfi LGA, were collated and analyzed.

Below are tables showing socio-demographic and reproductive data collected from the study.

4.1 The Socio-Demographic Characteristics of Respondents

Table 1: Socio-demographic data of nomadic women of reproductive age in Makarfi LGA, Kaduna State, April 2014

Variable	Frequency (n= 375)	Percent (%)
Age:		
<15	8	2.2
15-24	147	39.2
25-34	160	42.6
35-44	47	12.5
≥ 45	5	1.3
No response	8	2.2
Marital status:		
Married	360	96
Single	9	2.4
No response	6	1.6
Education:		
None	34	9.1
Started Quranic	274	73.1
Completed Quranic	36	9.6
Completed primary	20	5.3
No response	11	2.9
Occupation:		
Housewife	290	77.4
Trader	20	5.3
Other	53	14.1
No response	12	3.2

About 43% of respondents were between 25-34 years and 40% were between15-24 years.

Mean age 25.7 years ± 7 SD

Majority (96%) were married and 77% were housewives (unemployed).

Table 2: Reproductive History of nomadic women of reproductive age in Makarfi LGA, Kaduna state, April 2014

Variable	Frequency	Percent (%)
Parity	**n = 375**	
1-2	113	30.2
3-4	126	33.6
5 and above	134	35.7
No response	2	0.5
Age of youngest child (months)	**n = 323**	
<1-12	159	49
13-36	141	44
37-60	23	7

The total number (n) for age of youngest child was 323 out of 375 due to some of the participants being pregnant for the first time and some had spontaneous abortions or child died.

Thirty six percent (36%) of the respondents had been pregnant 5 or more times, and about half (49%) of respondents had children aged 12 months and below.

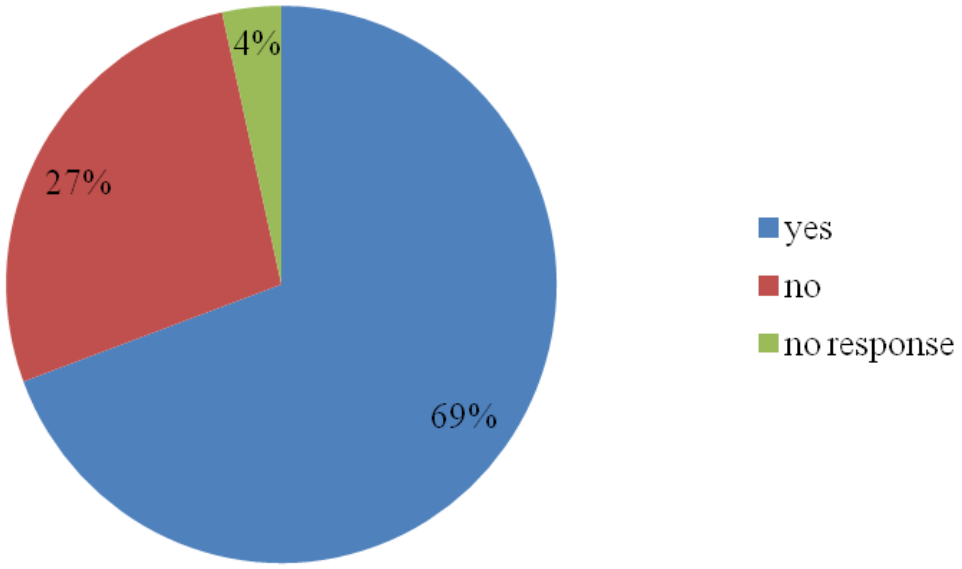


Figure 3: HIV awareness among nomadic women of reproductive age in Makarfi LGA, Kaduna

About two-thirds (69%) of respondents have heard about HIV/ AIDS.

Table 3: Knowledge of nomadic women of reproductive age in Makarfi LGA, Kaduna state on HIV, ANC and PMTCT, April 2014

Variable	Category	Frequency (%)
Knowledge on HIV transmission, prevention, MTCT	Poor knowledge (0-8)	364 (97)
	Good knowledge (9-14)	11 (3)
Knowledge of ANC: How do you ensure child is born healthy	ANC	208 (55.4)
	Other	126 (33.6)
	No response	41 (11)

*****Other includes: going to TBAs, taking herbs, eating well and getting adequate rest

Only 3% of study participants had good knowledge of HIV, transmission, prevention and MTCT

Over half of study participants (55.4%), know that attending ANC helps to ensure baby is born healthy

Table 4: Bivariate analysis for association between knowledge and demographic factors among women of reproductive age in Makarfi LGA, Kaduna State, April 2014

Variable	Knowledge		OR	95% CI	P value
	Good	Poor			
	Frequency (%)				
Age:					
<15-24	5 (45.5)	142 (40)	1.3	0.3 - 5.0	0.71
≥24	6 (54.5)	214 (60)			
Education:					
Primary	7 (63.6)	14 (4)	**42.4***	9.6 - 200	**<0.01***
None	4 (36.4)	339 (96)			
Occupation:					
Employed	3 (27.3)	70 (20)	1.5	0.4 – 5.8	0.54
Unemployed	8 (72.7)	282 (80)			
Parity:					
<5	8 (73)	276 (76)	0.7	0.2 – 3.1	0.78
≥5	3 (27)	86 (24)			

Primary education was found to be a predictor for good knowledge. Women with primary education were 42 times more likely to have good knowledge of HIV than those without any form of education.

There is a significant association between education and knowledge of HIV

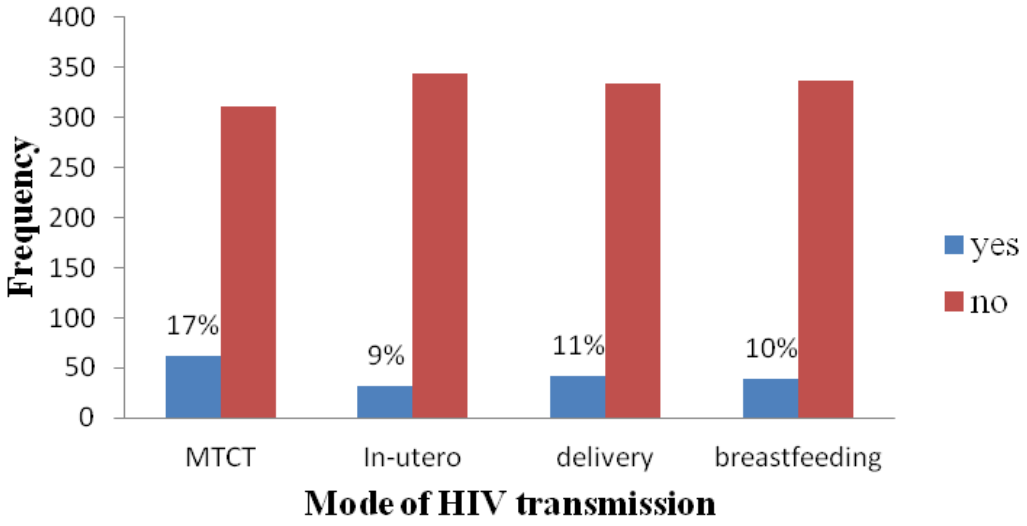


Figure 4: Knowledge of MTCT of HIV among nomadic women of reproductive age in Makarfi LGA, Kaduna

Seventeen percent (17%) of respondents know that HIV can be transmitted from a mother to her child. Only 9%, 11% and 10% of respondents know that HIV can be transmitted from mother-to-child in-utero, during delivery and through breast feeding respectively

Table 5: Attitude of nomadic women of reproductive age in Makarfi LGA, Kaduna state towards ANC and HIV screening, April 2014

Variable	Frequency (n=375)	Percent (%)
ANC		
High benefit	327	87.1
Medium benefit	13	3.5
Low benefit	3	0.8
No benefit	13	3.5
No response	19	5.1
Interested in ANC:		
Yes	326	87
No	38	10
No response	11	3
HIVpositive in community:		
Seek treatment in HF	62	16.5
Conceal status	188	50.1
Leave community	32	8.5
Alternative medicine	6	1.6
Don't know	87	23.3
Heard of anyone with HIV:		
Yes	238	63
No	112	30
No response	25	7
Effect of HIV on positive person in community:		
Apparently healthy	2	0
Very sick	72	19
Sickness & death	142	38
Don't know	85	23
No response	74	20
Willing to test for HIV:		
Yes	115	31
No	254	68
No response	6	1

Majority (87%) agree that ANC has high benefits and majority (87%) are interested in accessing ANC when pregnant.

More than half (63%) of the respondents have heard of someone that has HIV, however, only about one-third (31%) are willing to be tested for HIV.

Half (50%) of those that think they might have HIV will conceal their status and only about 16% will seek treatment in health facility.

Table 6: Practices of nomadic women of Makarfi LGA, Kaduna state with regards ANC and HIV, April 2014

Variable	Frequency (n=375)	Percent (%)
Attend ANC:		
Yes	272	72.5
No	92	24.5
No response	11	3
Where they go for ANC:		
Health facility	232	62
TBA	9	2.4
Chemist	26	6.9
Herbalist	5	1.3
Do not attend ANC	103	27.4
Where they deliver their babies		
Home	323	86.1
Health facility	16	4.3
TBA	26	6.9
First pregnancy	10	2.7
Been tested for HIV		
Yes	3	0.8
No	366	97.6
No response	6	1.6

*****Home means they deliver their babies alone without any help

Most (72.5%) of the respondents have attended ANC at least once but 86% delivered their babies at home. Only 1% of respondents have ever been tested for HIV.

Table 7: ANC attendance of nomadic women of reproductive age in Makarfi LGA, using number of visits based on the WHO standards for Maternal and Neonatal Care

Variable	Category	
No. of ANC visits	≥ 4	<4
Category	Adequate	Inadequate
Frequency (%) n = 375	102 (49.7)	103 (50.3)
Place of ANC:		
HF	92*	-
Other	10	-

*Other: they had ANC in chemist, TBAs or Herbalists; these are not considered as being under the supervision of a skilled attendant

*92: number of women with ≥4 ANC visits, this excludes women that were pregnant during the study as we had no information on stage of pregnancy

Only 92 (24.5%) of 375 women are considered to have adequate ANC attendance as they had at least 4 ANC visits in a health facility.

A total of 205 participants were recorded as attending ANC but of this, 102 (49.7%) had adequate attendance (≥4 visits).

Table 8: Association between ANC attendance and demographic factors among nomadic women of reproductive age in Makarfi LGA, Kaduna state, April 2014

Variable	ANC attendance		OR	95% CI	P value
	Yes	No			
Age:					
<24	112 (42)	35 (35)	1.3	0.8- 2.2	0.2
>24	155 (58)	65 (65)			
Education:					
Primary	20 (7.5)	1 (1)	**8**	1.1- 161.6	**0.02**
None	246 (92.5)	98 (99)			
Occupation:					
Employed	53 (20)	20 (20)	1	0.5 - 1.8	-
Unemployed	211 (80)	79 (80)			
Parity:					
<5	217 (80)	67 (66)	**2.1**	1.2- 3.6	**<0.01**
≥5	54 (20)	35 (34			

Primary education was found to have a positive effect on ANC attendance. Women with primary education were 8 times more likely to attend ANC than women with no education.

Women with parity less than 5 (<5) were 2 times more likely to attend ANC than women with ≥5 parities

Table 9: Reasons for home deliveries among nomadic women of reproductive age in Makarfi LGA, Kaduna, April 2014

Reason	Frequency (n=290)	Percent (%)
Custom	152	52.4
No need	52	18
Husband not permit	4	1.4
Ease of birth	41	14
Distance to HF	33	11.4
Poverty	8	2.8

Although participants gave a variety of reasons for not delivering in health facility, half (52%) of the respondents cited custom/tradition to be the reason.

Eighteen percent (18%) did not feel the need to deliver in health facility and 14% delivered with ease so did not need to.

Only about 11% of respondents indicated that distance to the health facility was an issue.

Table 10: Experience of nomadic women of reproductive age in Makarfi LGA, in their last pregnancy

Experience	Frequency (n=357)	Percent (%)
Complicated	35	10
Uncomplicated	322	90

Complications were experienced by 10% of the respondents in their last pregnancy. The complications experienced include: spontaneous abortion, wrong presentation, prolonged labour, severe bleeding, preterm delivery, stillbirth, retained placenta and generalized oedema.

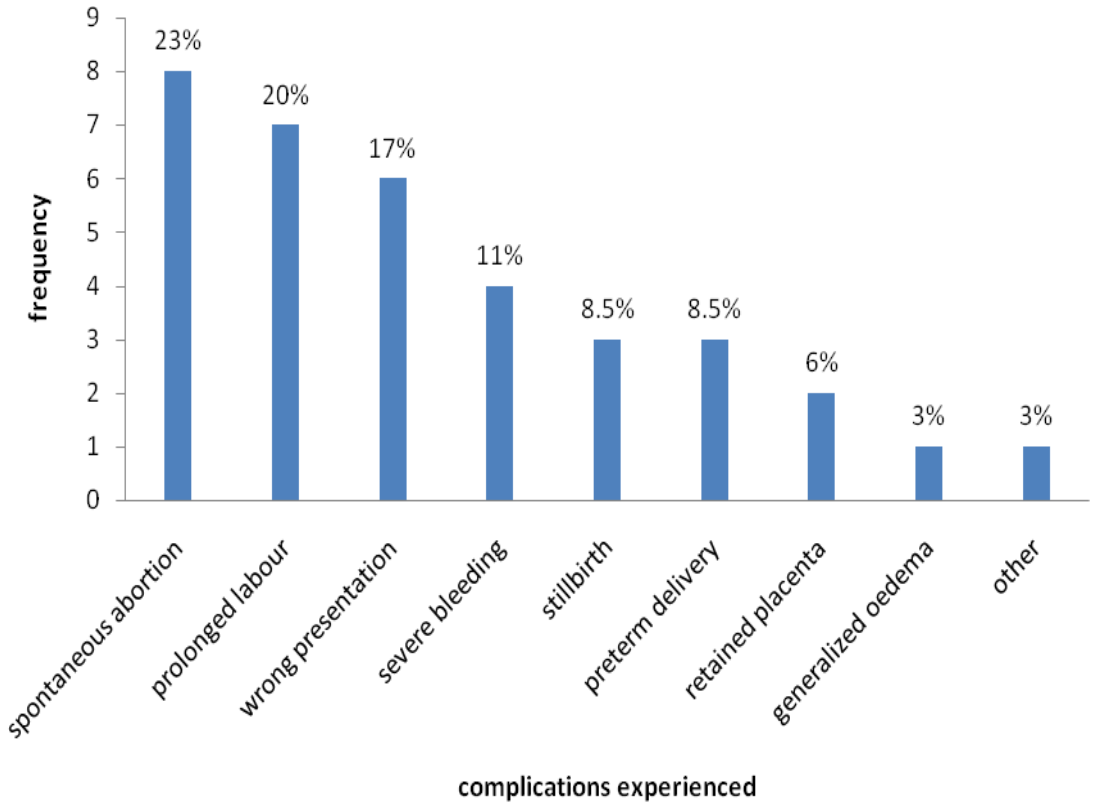


Figure 5: Complications experienced by nomadic women of reproductive age in Makarfi LGA, during their last pregnancy

***Other: Did not give a clear definition of nature of complication but confirmed their babies were delivered in health facility because they had problems during delivery

Spontaneous abortion (23%) was the most common type of complication experienced in pregnancy among the respondents, closely followed by prolonged labour (20%) and wrong presentation (17%).

4.2 Results of Interview with TBAs

Ten Traditional Birth Attendants were interviewed and the information obtained was analyzed

Table 11: Educational background, work experience and type of services rendered by TBAs within and around nomadic settlements in Makarfi LGA

Variale	Frequency	Percent (%)
Type of service:		
Fixed	1	10
Home service	9	90
Work experience:		
< 5 yrs	4	40
10-15 yrs	5	50
30 yrs	1	10
Education:		
None	6	60
Quranic	4	40
Role as TBA:		
Cut cord & clean baby	7	78
Delivery	2	22
Formal training on ANC, safe delivery practices and PNC		
Yes	0	0
No	10	100
Training on MTCT and PMTCT		
Yes	0	0
No	10	100

Majority (90%) of the TBAs interviewed render home services.

Half (50%) of respondents had 10-15 years experience as TBAs and 60% had no form of education while the remaining 40% had only Quranic education.

Only 22% of the TBAs were involved in the actual delivery process, majority were called upon only to cut the cord and clean the baby after the mother must have delivered alone in her room.

All (100%) of TBAs interviewed during the study did not have any formal training in pregnancy monitoring, ANC, safe delivery practices and Post Natal Care (PNC).

And finally, none of the TBAs had any training on MTCT and PMTCT of HIV.

Table 12: Knowledge of TBAs within and around nomadic settlements in Makarfi LGA, on HIV and HIV prevention, including PMTCT

Variable	Grading Score	Knowledge Classification	Frequency (%)
Knowledge on HIV transmission:			
- HIV transmission	0-4	Poor	10 (100)
- MTCT	5- 7	Good	0 (0)
- Prevention of MTCT			
Refer complications:			
Yes			4 (40)
No			6 (60)
Recommend HIV test			
Yes			1 (10)
No			9 (90)
Use gloves			
Yes			0 (0)
No			10 (100)

*knowledge score ranges from 0-7 with 0-4 = poor knowledge; 5-7 = satisfactory knowledge

*Recommending HIV testing did not involve actually testing clients

The above table shows that 100% of TBAs have poor knowledge on HIV.

Only 10% will recommend HIV testing and 40% will refer a client with complications to health facility.

All (100%) of TBAs patronized by nomads during or after (cutting of cord) delivery work with their bare hands.

4.3 Health Facility Checklist

Five health facilities were sampled and were found to provide ANC, routine tests in ANC, labour and delivery services.

ANC was not provided on a daily basis but was one day/week or two days in a week in some of the facilities.

Three out of five selected facilities provided PMTCT services.

Also the facilities were all Primary Health Centers located within the wards that were sampled.

4.4 GPS co-ordinates to determine geographical location and distance to health facilities

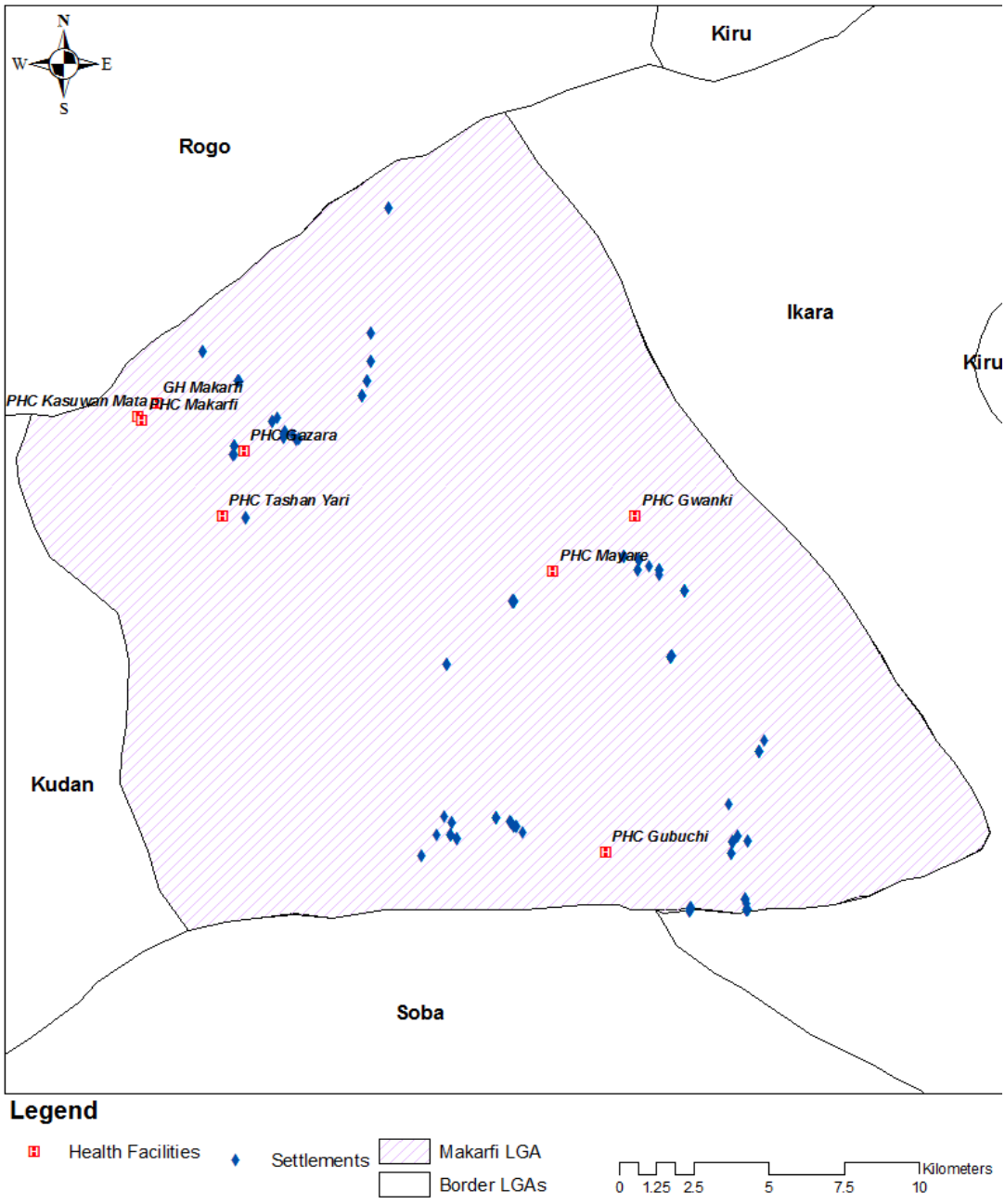


Figure 6: Map of Makarfi LGA showing nomadic settlements visited and health facilities

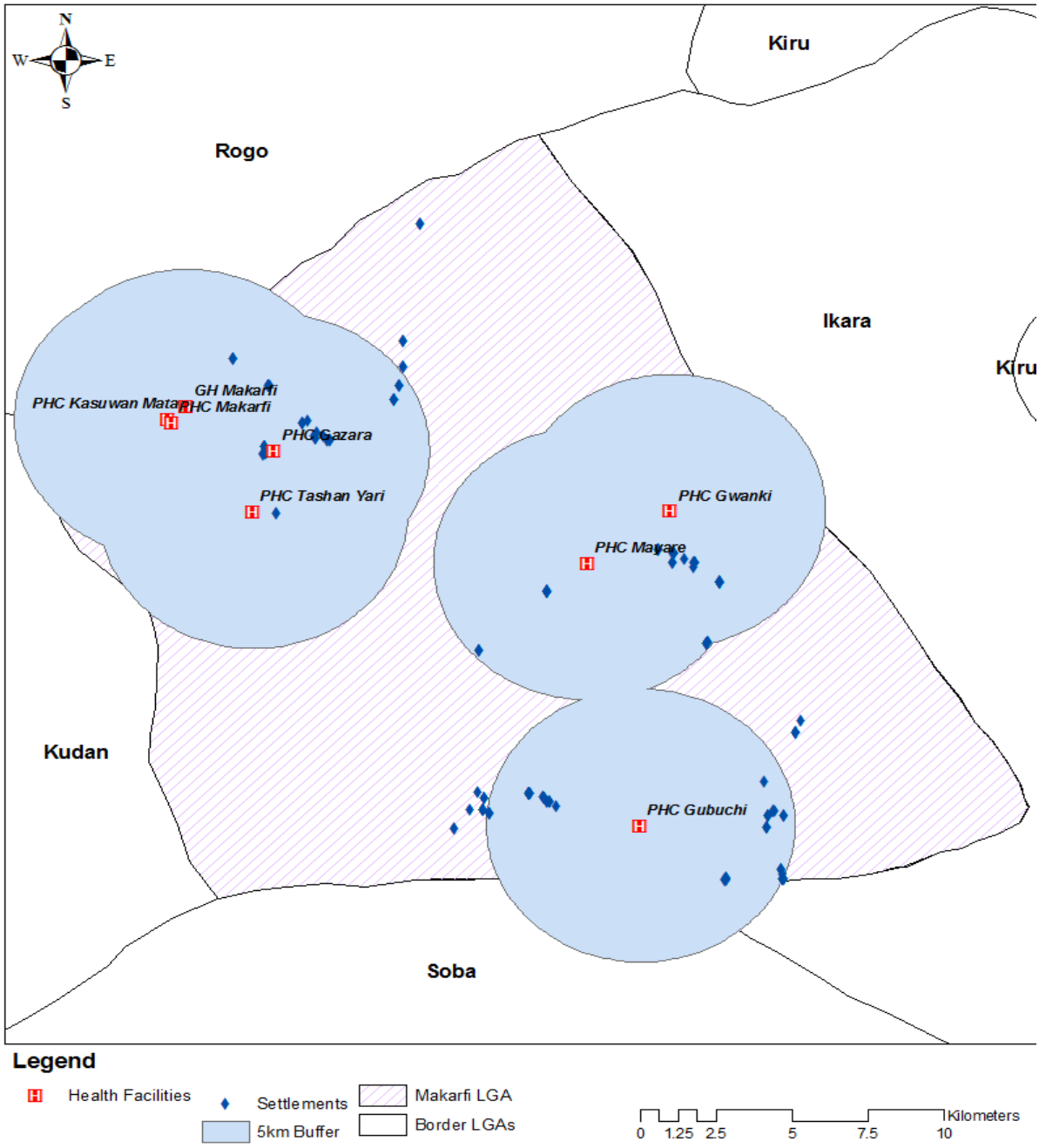


Figure 7: Map of Makarfi LGA showing nomadic settlements located within 5km radius of health facilities

Majority (78%) of settlements were within a 5km radius of the health facilities. This indicates that the distance from majority of the settlements to the health facilities is not more than 5km.

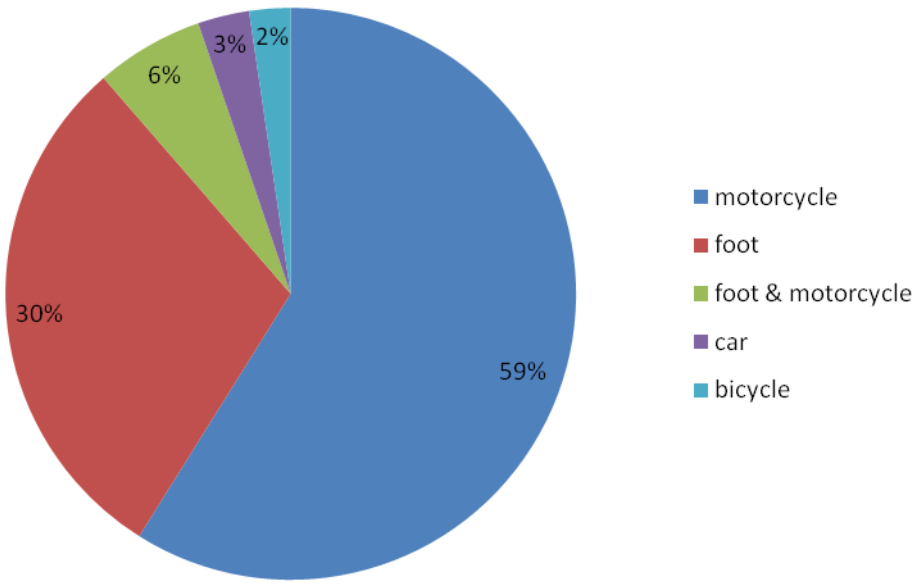


Figure 8: Mode of transportation from nomadic settlements to nearest health facilities in Makarfi LGA as indicated by respondents

These areas had no proper roads only foot paths and transportation to the nearest health facilities was mainly by motorcycle and foot.

CHAPTER FIVE

5.0 Discussion

Findings from this study showed that though two-thirds of the nomadic women of reproductive age in Makarfi LGA had heard of HIV/ AIDS, they had poor knowledge of HIV, mother-to-child transmission of HIV and prevention. Majority of the study participants had no form of education, however, having a primary education was a predictor for better understanding of HIV /AIDS. The attitude towards HIV testing was mainly negative. Even though majority of the study participants expressed interest in ANC, only a quarter of the population had adequate ANC attendance (≥4 visits in health facility) and 4% of these, had good knowledge of HIV. Primary education and being pregnant less than 5 times had a positive effect on ANC attendance. Most of the study participants delivered their babies at home for cultural reasons, and almost all had never been tested for HIV. Interviews with TBAs revealed poor knowledge of HIV/AIDS, MTCT and it's prevention. All the health facilities in the wards where the study was carried out were providing ANC, routine tests in ANC (including rapid HIV testing), labour and delivery services but not all offered PMTCT services Almost all the study participants (94.5%), had no formal education and most were unemployed. About one-third had been pregnant at least 5 times. One-tenth of study participants experienced complications in their last pregnancy, causes of which include spontaneous abortion, still birth, prolonged and difficult labour, wrong presentation, preterm delivery, retained placenta and severe bleeding.

A good proportion of the study population had heard of HIV/ AIDS, similar to observations in several studies two of which were done in Nigeria[47,49] and another in Somalia,[45] although a higher proportion of study participants had knowledge on HIV compared to our study. In our study, participants had poor knowledge of HIV, HIV transmission and prevention, which agrees

with a study[47] among women of child bearing age in Nnewi, Nigeria and another study among semi-nomadic population in Somalia.[45]

Primary education had a positive effect on better understanding of HIV /AIDS in this study, as seen in a systematic review on the effectiveness of HIV/AIDS school-based sexual health education programmes[57] and in a study among ANC attendees both in Nigeria, although the later found those with at least secondary education to have the highest knowledge about HIV. Age, as also found in Somalia,[45] occupation and parity had no effect on knowledge of HIV.

Specific knowledge on MTCT and prevention was poorer among the study population than the general knowledge of HIV. Three-quarters of the study population did not know that HIV can be transmitted from mother-to- child and more than half of them could not mention a single mode of MTCT. This is similar to the findings in Northwest Nigeria among women attending ANC.[47] A contrary finding was seen in another facility-based study done in Uganda where knowledge of MTCT was high;[43] this may be due to the quality of HIV education during the antenatal clinics. In a study done in Vietnam,[50] majority did not know that MTCT can occur. The attitude towards HIV testing was mainly negative, this is supported by study done in Uganda and Tanzania,[44] and is contrary to study in Somalia among semi-nomadic population in which more than half the population were willing to be tested.[45] There was no association between education and willingness to test for HIV. This is inconsistent with findings in Uganda,[43] where a study showed a high willingness to test for HIV and an association between education and willingness to be tested. The discrepancy may be because the Ugandan study was hospital-based while our study was community-based involving women with limited contact with health services and low enlightenment with regards HIV/ AIDS. Though majority had heard about/know one HIV infected individual, majority perceived the person as very sick and eventually dying. The

majority were also of the opinion that individuals hide their status and only the minority seek medical support. A very high proportion of the study participants, including those that have never utilized antenatal care services perceive that ANC has high benefits. This may be due to the participants' perception of what is socially acceptable to the interviewers and the responses may have been influenced as such.

The low rate of adequate ANC attendance among our study population was also demonstrated in another study among nomadic Fulani in southwestern Nigeria,[21] where ANC attendance was almost non-existent and in a study among semi-nomadic population in Israel,[20] which recorded low attendance. The low attendance recorded may be attributable to distance to the health facilities, lack of awareness and socio-cultural reasons like not feeling the need for the services and high regard for privacy. We also found that lower parity had a positive effect on ANC attendance, this correlates with findings in a systematic review of studies in developing countries, where high parity had a negative effect on antenatal attendance.[25] There was no association between parity and having complications in the last pregnancy although studies in Ghana[58] and Ethiopia[59] found otherwise, both found an increased likelihood of having complications with parity ≥ 5 as compared to women who had single deliveries. Primary education was found to also have a positive effect on ANC attendance, while age and occupation had no effect. This differs from a study in Ibadan where a significant association was found between age and employment status, and ANC utilization.[60]

The Fulani are a very conservative population who cherish privacy and proudly believe a woman should deliver within the walls of her room unattended, most of the time only when the baby is delivered do they invite the TBAs to cut the cord and clean the baby. For the nomadic women in this study, home delivery is a norm and a thing of pride for it indicates how brave a woman is,

this may explain why the proportion of women found to deliver in health facilities was very low, this is re-enforced by a Ugandan study,[43] and even those who actually delivered in the presence of TBAs was equally low. The majority delivered at home giving cultural reasons with a lesser proportion of participants citing logistic reasons like distance to health facilities and poverty. Our study also found the proportion of those that had ever been tested for HIV and knew their status, to be extremely low, similar to studies done in Uganda and Tanzania.[44] This may be due to ignorance and the lack of knowledge about HIV on one hand and fear of the unknown and stigma on the other hand.

The TBAs in our study were all female and elderly. Majority of the traditional birth attendants assist on demand in their community none had any formal education and none of them had trainings in antenatal care, safe delivery practices, HIV and PMTCT. Such TBAs were described in a study done in Northern Nigeria as Non-Skilled Birth Attendants (NSBAs), who stand a higher chance of delivering low quality maternal care.[61] Only a minority of our respondents were involved in the actual delivery process, majority were called upon after a woman had delivered her baby, to sever the cord and clean the baby. Unsafe procedures like cutting the cord using unsterilized blades may serve as risk factor for neonatal tetanus. One-tenth of the TBAs interviewed recommend HIV testing for their clients and less than half refer cases of complications to health facilities. Half of the TBAs interviewed had 10-15 years work experience.

It was shown that TBAs had poor knowledge of HIV and MTCT and its prevention. This is consistent with findings from studies done in Lagos, Nigeria[51,62] and another study done in Uganda and Tanzania.[44] The poor knowledge consistently observed in our study and other studies may be due to low educational levels which seems common among TBAs, lack of proper

education on HIV and absence of training on HIV transmission and prevention methods for the safety of the TBAs, their clients and the babies delivered.

None of the traditional birth attendants kept records of their clients, and none enquired if their clients knew their HIV status.

All the TBAs in our study worked with their bare hands, unlike in a study in Lagos, Nigeria where majority were found to use gloves during deliveries.[51]

The health facilities were Primary Health Centers located within the wards where the study was done. All were found to provide antenatal care services, routine tests in ANC including rapid screening for HIV and labour and delivery services; and more than half of the facilities were providing PMTCT services. All these indicate that availability and the affordability (only about 3% of study participants cited poverty as a reason for delivering their babies at home) of the services are not among the factors influencing access to ANC and PMTCT in our study population. We did not however, examine the adequacy in terms of quality of services and could not determine the proportion of attendees that were nomads from our data, to be able to ascertain if those that claimed to attend ANC actually accessed the services at these facilities. We found that the routine tests at first antenatal booking includes the rapid HIV screening, but we did not determine whether or not those tested received their results. Average monthly uptake for each of the services available at the facilities were recorded but we did not get the proportion that were nomads.

When the distance between nomadic settlements and health facilities within and outside the wards sampled in the LGA was determined, it was found that majority of the settlements were within a 5km radius from the health facilities. Also, only about 11% of respondents cited

distance as a reason for delivering their babies at home. Although we found that the roads were merely foot paths, majority indicated that they could get to the nearest health facility on motorcycle or by foot. These rules out geographic accessibility as a barrier to health service utilization.

Finally, acceptability of healthcare services (ANC and PMTCT) seems to have a great influence on access to the services, as this study found that cultural and community norms, lack of health awareness, education and poor knowledge of HIV are the major factors that influence access among our study population.

CHAPTER SIX - CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Both ANC and PMTCT services are under-utilized. Poor knowledge of HIV and cultural factors which influence their attitude and practices are major barriers that prevent the nomadic women of Makarfi LGA from accessing PMTCT services because they do not attend ANC which serves as an important entry point and so the opportunity to utilize the prevention of mother-to-child transmission services is missed. Secondly, geographic accessibility is not a barrier to access of ANC. However, some health facility related factors may also contribute to the under-utilization of ANC and PMTCT services as there seems to be a disconnect between the study population and the health facilities in the sense that even those who were found to have adequate antenatal attendance were lacking basic HIV and HIV prevention knowledge. This raises the question of the quality of the ANC services and whether or not HIV education is effectively delivered during the antennal clinics in the health facilities. It will be worthwhile to have a closer look at what actually goes on during antenatal visits and PMTCT sessions in these facilities, to give a better picture of the facility related barriers. Availability of PMTCT services in three of five wards is a good start and in line with the national PMTCT policy to scale up as more facilities within the LGA are at present being equipped to carry out these services.

6.2 Recommendations

Based on the findings documented in this study, the following specific recommendations are proffered to the various bodies:

1. Nomadic Community:

There is a need to change their orientation to encourage women to utilize ANC and delivery services. This can be achieved by sensitizing the men and educating them on how important it is for pregnant women to utilize healthcare services.

2. Makarfi LGA Department of Primary Health , there is a need to:
    a. Organise campaigns to sensitize the nomadic community on the type of services available in the health facilities and re-orient them on the importance of utilizing health services, especially with regards HIV prevention. This can be achieved by involving their community heads (Ardos) in the process.
    b. Enlighten the nomadic community by organising frequent HIV education outreach sessions, highlighting the benefits of ANC and PMTCT services and the benefits of utilizing the services.
    c. Regularly train health workers on quality service delivery laying emphasis on important messages on ANC and PMTCT, to be conveyed to all women visiting the facilities regardless of their purpose of visit.
3. Kaduna State Ministry of Health needs to:

    Strengthen HIV education, focusing on prevention especially regarding PMTCT through the media especially the radio, which almost all nomads own and listen to regularly.

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APPENDICES

Appendix 1: Ethical Clearance

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/ **6th March, 2014**

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PERMISSION TO CONDUCT RESEARCH

I have been directed to convey the Ministry's approval to **DR UMAKALTUME ABUBAKAR, a student of NIGERIAN FIELD EPIDEMIOLOGY AND LABORATORY TRAINING PROGRAM (NFELTP) CONHORT 4 RESIDENT AHMADU BELLO UNIVYERSITY ZARIA, KADUNA STATE , to conduct a research on the Topic:"**Factors influencing access to Antenatal Care and Prevention of Mother(to child Transmission (PMTCT) of HIV Services among Nomadic Women in Makarfi LGA, Kaduna state Nigeria.

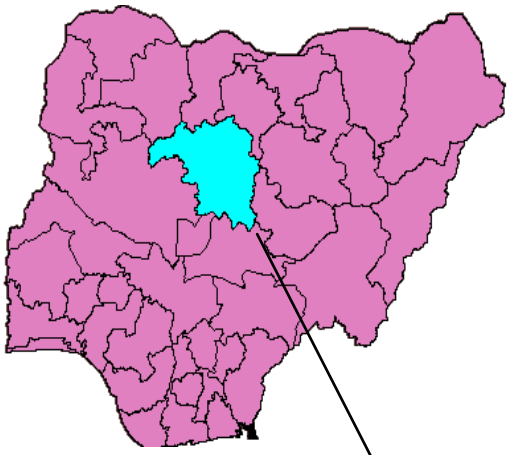
It is expected that necessary assistance be accorded him/her in the process of the research, please.

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

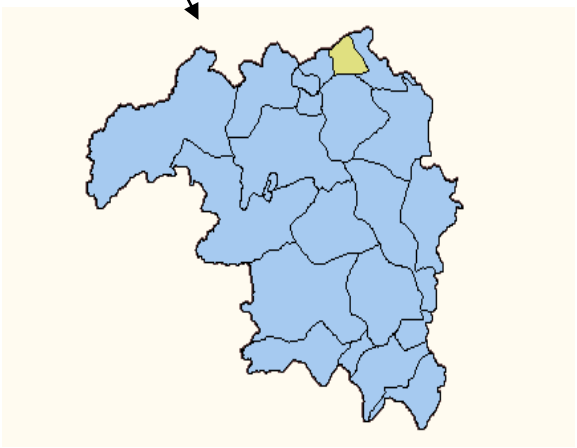
Accept the assurances of the Honourable Commissioner's highest regards.

F. A. KURAH (MRS)
SECRETARY, ETHICAL COMMITTEE

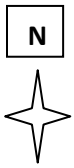
***Appendix 2*: Map showing study area**



Map of Nigeria highlighting Kaduna State



Map of Kaduna State highlighting Makarfi LGA



Appendix 3: **Questionnaire for nomadic women**

Information For Participants

Factors Influencing Access To Antenatal Care and Prevention of Mother- To- Child Transmission (PMTCT) Of HIV Among Nomadic Women In Makarfi LGA, Kaduna State Nigeria

My name is Dr. Umakaltume Abubakar, I am a resident of the Nigerian Field Epidemiology and Laboratory Training Program (NFELTP). I am carrying out a study to determine access to healthcare and Prevention of Mother To Child Transmission (PMTCT) of HIV in pregnant women in your community. I will not ask any questions about any woman's HIV status. There is minimal risk involved in participating in this study. You can choose not to participate in the study. You are also free to withdraw from the study whenever you want and there will be no consequences. This interview will only take about 30 minutes of your time. You are only one of about *360* women participating in the study in this LGA. No names will be taken and information you give to us will be strictly confidential.

Thanks for your time.

Participant Identification Number: ……..……..

Ward …….…….

Nearest town/ village with health center…….

Means of transportation to nearest health center: Foot [ ] Bicycle [ ] Motorcycle [ ] Car [ ]

Other [ ] specify……

GPS Coordinates N_____ E_____

Did you consent to participate in this study? Yes [ ] No [ ]

Section 1: Demographic Information

1. Age in years ……
2. Marital status: single [ ] married [ ] divorced [ ] widowed [ ] Separated [ ]
3. Education:None [ ] Started Quranic [ ] Completed Quranic [ ] Started Primary [ ] Completed Primary [ ] Started Secondary [ ] Completed Secondary [ ] Started Higher Education [ ] Completed Higher Education [ ] Other [ ] specify……
4. Occupation / role in community: house wife [ ] Trader [ ] Other [ ] specify…….. …

Section 2: Reproductive History

5. Number of times pregnant (clarify that the pregnancy does not need to result in a live birth): 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ] above 5 [ ]
6. What was the outcome of your last pregnancy? term live birth [ ] Stillbirth [ ] spontaneous abortion [ ] preterm live birth [ ]
7. If answer to number 5 is preterm live or term live birth.

Did the baby survive? Alive and well [ ] Alive but sick [ ] baby died [ ]

8. What was the experience in your last pregnancy? Complicated [ ] Uncomplicated [ ]
9. If complicated what was the complication faced? …….
10. Age of last child in months or years

_____ Years OR _____ months

Section 3: Knowledge about HIV/AIDS, ANC and PMTCT services

Answer yes or no to the options in each of the questions below

11. Can you prevent your unborn baby from being born sick? By eating well during pregnancy [ ] by resting well [ ] by taking herbs [ ] going for ANC and utilizing other available services [ ] by going to Traditional birth attendants [ ]

12. Have you ever heard of HIV/ AIDS? Yes [ ] No [ ]

13. What do you know about HIV? Can HIV be transmitted from one person to another [ ] Can HIV develop to AIDS [ ] does HIV kill [ ]

14. How do you think HIV is transmitted? It is transmitted through:*(answer yes to all that apply)* Sex with infected person [ ] using the traditional surgeon's blade for barbing, circumcision [ ] Mosquito bites [ ] contact with infected person [ ] breathing contaminated air [ ] drinking contaminated Water[ ] Contact with infected blood [ ] supernatural [ ] don't know [ ] other [ ] specify……

15. Can HIV be transmitted to an unborn child? Yes [ ] No [ ] don't know [ ]

16. If yes, how can HIV be transmitted to an unborn child? In utero [ ] during delivery [ ] supernatural [ ] don't know [ ] other [ ] specify……

17. How do you think HIV can be transmitted to a newly born baby? During delivery [ ] Breast feeding[ ] supernatural[ ] don't know[ ] other[ ] specify…….....

18. How can transmission of HIV from mother to baby be prevented? Utilizing prevention from mother to baby services [ ] taking medicinal herbs [ ] prayers [ ] Traditional healers [ ] other [ ] specify…….....

Answer yes or no to questions below

19. How can an HIV positive person avoid infecting others? Using condoms with sexual partner(s) [ ] avoid sharing razor blades/ other sharp objects with other people [ ] Adhering to ARV treatment [ ] Being prayerful [ ] Taking herbs [ ]

20. How can a HIV negative person stay negative? abstinence [ ] Being faithful to one HIV negative partner [ ] using condoms [ ] Ritualists [ ] prayers [ ] avoid sharing of razors, syringes and other sharp objects with others [ ] other [ ]

21. Do you know what condoms are and how they are used?

    Yes, I know condoms and how they are used [ ] no I don't know what condoms are [ ] yes I know condoms but don't know how they're used [ ]

22. Do you know where to go for HIV testing? Yes [ ] No [ ]

23. Where would you go to be tested for HIV? Chemist [ ] primary health center [ ] general hospital [ ] private labs [ ] ABU teaching hospital [ ] HIV Counseling and Testing centers (HCT) [ ]

Section 4: Attitude towards ANC, HIV/AIDS and PMTCT services

24. What do you think about ANC services? Do you think it has: High benefits [ ] medium benefits [ ] low benefits [ ] no benefit [ ]

25. In your community when people think they might have HIV what do they do? Leave the community [ ] refuse to divulge information [ ] seek treatment at hospital [ ] seek treatment from traditional healers [ ] seek help from mallams [ ]

26. Have you heard of anyone that has been sick as a result of HIV/ AIDS? Yes [ ] No [ ]

27. What happened to that person? Healthy [ ] Very sick [ ] Became very sick and died [ ] Don‘t know [ ]

28. Would you like to know your HIV status? Yes [ ] No [ ]

29. Are you willing to be tested for HIV? Yes [ ] No [ ]

30. Are you interested in accessing care when you are pregnant? Yes [ ] No [ ]

Section 5: Practice with regards HIV/AIDS, ANC and PMTCT

31. Where do you go when you are sick? clinic/ hospital [ ] Chemist [ ] traditional healers [ ] stay home [ ] others [ ] specify……

32. When you are pregnant do you seek for ante-natal care? Yes [ ] No [ ]

33. If yes, where do you go to seek for care in pregnancy? Health facility [ ] chemist [ ] traditional healers [ ] mallams [ ] Traditional Birth Attendants [ ] other [ ] specify……

34. How many times did you attended ANC in your last pregnancy? specify no. of times.....

If the participant answered *no* to number 32

35. Why don't you seek for care when you are pregnant? Not aware [ ] don't know where to get ANC [ ] long distance to clinic [ ] absence of services [ ] Attitude of health workers [ ] prefer home birth [ ] don't see the need [ ] Husband will not permit [ ] other [ ] specify……

36. Where do you go to deliver your baby? Health facility [ ] Traditional Birth attendant [ ] Home [ ] other [ ] specify…….

37. If answer to no. 36 is at home, ask why do you deliver at home? Tradition/custom [ ] hospital too far [ ] husband will not permit [ ] cant afford to pay [ ] don't see need [ ] ease of delivery [ ] other [ ] specify……..

38. Have you ever been tested for HIV? Yes [ ] No [ ]

***Appendix 4*: Consent Form**

Participant ID:…… Date: ……..…

Access To Antenatal Care And Prevention Of Mother To Child Transmission Of HIV Among Nomadic Women In Makarfi LGA Kaduna State Nigeria

Reason For The Study:

This study is being done as part of my training requirement as a Nigerian Field Epidemiology and Laboratory Program (NFELTP) resident. I am carrying out this study to determine Nomadic access to Prevention of Mother To Child Transmission of HIV (PMTCT) and Antenatal Care services; and also to assess the Knowledge, Attitudes and Practices of this community on HIV and transmission to child. The findings from the study can assist decision makers on how to improve access to Healthcare services.

What Will Happen In This Study?

a. If you choose to take part in the study we will ask you questions for about 30 minutes

b. We will take GPS readings for the area

What Are The Risks Of Participating In The Study?

- There are minimal risks involved in participation; you will only give us about 30 minutes of your time.

What Are The Benefits? Would There Be Payment For Your Time And Effort?

- Participation in the study may help us identify gaps in providing healthcare services and ways to improve access to such services.

- You will not receive any payment for being included in the study

What About Privacy?

- No names or addresses will be collected except for identification of the area through GPS

- We will maintain information collected from you as confidential

What Happens If You Don't Take Part Or Want To Stop?

- There is no consequence for not taking part. You are free to take part or withdraw whenever you want

If You Have Questions About The Study

- For any questions or clarifications you may contact Dr. Umakaltume Abubakar on this number: 08037030397

AGREEMENT

This study has been explained to me clearly. The questions I asked were answered satisfactorily. I understand that I can choose to participate in the study and I can choose to drop out of the study at anytime. If I choose to drop out of the study it will not affect my status, present or future in the community. I also understand that I will receive a copy of this form.

I agree to join the study,

Name……

Signature…….

Date……

(If participant is illiterate, you will need thumbprint of the participant and signature of the witness)

Thumbprint of participant……..

Witness' signature……

***Appendix 5*: Checklist For Health Facilities**

Facility name: ……

GPS coordinates: ……

Ward: ……

Type: Primary health center [ ] Comprehensive health center [ ] Health clinic [ ] Health posts[ ]

HEALTH SERVICES:

	Services offered	Yes	No	Average Monthly Uptake
1	Do you offer Antenatal Care services?			
2	Does the Antenatal service include routine tests in pregnancy?			
3	Do you offer labour & delivery services?			
4	Do you offer routine immunization services?			
5	Do you provide post natal care?			
6	Do you provide syndromic management of STI services?			
7	Do you offer family planning services?			
8	Do you provide HIV/AIDS counseling and testing services?			
9	Do you offer prevention of mother to child transmission of HIV services?			
10	Do you provide Antiretroviral therapy?			
11	Do you provide laboratory services?			
12	Do you provide blood screening services?			

How many times do you provide ANC services per week in this facility? …….

*Adopted from NHMIS Fed Min of Health (Health Facility Summary Form)

***Appendix 6*: Questionnaire For TBAs**

Questionnaire to be administered to Traditional Birth Attendants (TBAs)

TBA Participant Number ……...

Do you consent to participate in this study? Yes [ ] No [ ]

Location:

Ward: ……

Town/ Village …….

GPS N……. E……. Type of service: mobile [ ] facility based [ ]

1. How long have you been working as TBA? ……
2. What is your role as TBA in your community? Taking deliveries [ ] cutting umbilical cord and cleaning baby [ ] taking delivery and cutting cord/ cleaning baby [ ]
3. What is the average number of deliveries you have per month?.....
4. Do you keep records of clients, deliveries made and the outcomes? Yes [ ] No [ ]
5. If records are kept, how is it documented? …….
6. Do you offer Antenatal services? Yes [ ] No [ ]
7. What is your educational background? None [ ] Quranic [ ] Primary [ ] Secondary [ ] Tertiary [ ]
8. Have you had any training in pregnancy monitoring? Yes [ ] No [ ]

9. If Yes to no. 6, specify nature of training and qualification obtained.

……

10. Have you had any training in safe delivery practices? Yes [ ] No [ ]

11. If yes to no. 6, specify nature of training and qualification obtained

……

12. Have you had any training in post natal care? Yes [ ] No [ ]

13. If yes to no. 10 specify nature of training and qualification obtained

…….....

14. Have you had any training on HIV/ AIDS with respect to knowledge and prevention practices, including PMTCT? Yes [ ] No [ ]

15. If yes to no. 12, specify nature of training and qualification.

……

16. Do you refer clients with complications? Yes [ ] No [ ]

17. Where do you refer your clients that have complications?

.....

18. Do you ask your clients if they know their HIV status at booking? Yes [ ] No [ ]

19. Do you recommend they do HIV test? Yes [ ] No [ ]

20. What do you know about HIV/ AIDS? *(Tick all that apply)* HIV can be transmitted from one person to another [ ] HIV cannot be transmitted from one person to another [ ] HIV can develop to AIDS [ ] HIV kills [ ]

21. How is HIV/AIDS transmitted? It is transmitted through*:(tick all that apply)*

Sex with infected person [ ] using the traditional surgeon's blade for barbing, circumcision [ ] Mosquito bites [ ] contact with infected person [ ] breathing contaminated air[ ] drinking contaminated Water [ ] Contact with infected blood [ ] supernatural [ ] Refused to answer [ ] don't know [ ] other specify……

22. How can you prevent transmission of HIV in your practice? Wearing gloves during delivery [ ] Using new razor blades to cut cords/ not sharing blades [ ] cleaning and disinfecting delivery area with bleach [ ] Washing razor with salt water [ ] Washing delivery material and area with detergent [ ]

23. Can HIV be transmitted from mother- to- child? Yes [ ] No [ ] I dont know [ ]

24. How can HIV be transmitted from mother to child? During pregnancy [ ] during delivery [ ] breast feeding [ ] supernatural [ ] I don't know [ ] other [ ] specify……

25. How can mother- to- child transmission be prevented? Utilizing prevention of mother-to-child services [ ] taking medicinal herbs [ ] prayers [ ] Traditional healers [ ] other [ ] specify .....

26. How do you take deliveries? Bare hands [ ] Gloves only [ ] Gloves and gown [ ]

***Appendix 7*: Workplan**

S/N	Project Activity	Physical Target	Time Frame	Major Expected Outcome
1	Design questionnaires	Draft questionnaires	2 weeks	Study questions
2	Procurement of stationeries	All instruments required for study available	2 weeks	Study instruments
3	Translation of questionnaires into Hausa	Questionnaires in hausa		Study question
3	Travel to field test questionnaires	Standardization of questionnaires	1 week	Final data tools
4	Travel to study area Printing and photocopying of questionnaires	Prepare study instruments	3 days	Data tools complete
5	Advocacy Identification and training of interviewers	Trained interviewers	1 week	Questionnaires administered and GPS recorded
6	Administration of questionnaires	Data collection	2 months	Study data obtained
7	Allowances for interviewers and guides			
7	Create database and clean data	Cleaned data	1 month	Analyse data