

**AN ANALYSIS OF KNOWLEDGE AND PREVALENCE OF SEXUALLY  
TRANSMITTED DISEASES IN KADUNA METROPOLIS,  
KADUNA STATE, NIGERIA**

***BY***

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**JANUARY, 2017**

## **DECLARATION**

I hereby declare that this dissertation titled “**An Analysis of Knowledge and Prevalence of Sexually Transmitted Diseases in Kaduna Metropolis, Kaduna State, Nigeria**” was written by me and is a product of my research effort. It has not been presented in any previous application for any degree or diploma. All quotations are indicated and the sources of information are acknowledged by means of references.

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## CERTIFICATION

This dissertation titled, “**An Analysis of Knowledge and Prevalence of Sexually Transmitted Diseases in Kaduna Metropolis, Kaduna State, Nigeria**” by **AKOS, Jeremiah Into** meets the regulations that govern the award of Degree in Masters of Science (**Demography and Population Studies**) of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

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## **DEDICATION**

This research work is dedicated to God Almighty for His love, protection and unending grace upon me throughout my educational pursuit.

## **ACKNOWLEDGEMENTS**

My utmost submission, praise and thanksgiving goes to God Almighty for granting me yet another opportunity to undertake a pure academic research work. To Him be all the glory.

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I earnestly value the support of my husband, my daughter, my parents and siblings towards the realization of this work.

## ABSTRACT

The focus of this study is to analyse the knowledge and prevalence of sexually transmitted diseases in Kaduna metropolis. Studies have shown an exponential rate of increase in STDs cases in Kaduna State with variations in terms of levels between settlements which could be attributed to high population growth and concentration, high level of poverty, ignorance and risky sexual behaviours. This study is potentially very important in shaping the behavioural characteristics of the society and provide decisive information for planning and evaluating the success of health services and interventions. The aim was achieved by characterizing the types of STDs, assessing level of knowledge and prevalence rate of STDs in the study area. The study also analysed the socio-economic factors and risk factors influencing knowledge and prevalence of STDs. This was conducted using questionnaire and FGDs covering a temporal scope of five years (2010-2014). Purposive sampling technique was adopted. Frequency distribution, percentages, charts, cross-tabulation and multiple regression analysis were deployed in the study. From the results obtained, it was established that syphilis, human papilloma virus (HPV) and gonorrhoea are the major STDs dominant in the study area and the Chi square indicated a statistical significant relationship between sex and type of STDs while no statistical significant relationship exist between sex and knowledge of STDs. Chikun showed high prevalence rate followed by Kaduna South, Kaduna North and Igabi in that order, where respondents within age group 20-24 have the highest prevalence of STDs. This showed age, religion, education level, occupation, and income as important determinant factors influencing knowledge of STDs. The number of sexual partners, frequency of condom use, knowledge of STDs, use of shared toilet facilities, and HIV/AIDS screening were recognized to be the determinant factors influencing prevalence of STDs. While education, occupation, income level, religion and accommodation type were found to be the most important socioeconomic factors influencing knowledge and prevalence of STDs in Kaduna metropolis. The study then recommended that efforts be stepped up on the ethical and moral values within places of religious worship and schools, also governments and NGOs should enlighten the public about STDs and help them secure support, control and prevention. Stigmatization especially for those with HIV/AIDS should be discouraged and access to medical facilities should be improved by the government. More research should focus on coping mechanism for those already infected with sexually transmitted disease and further studies should be carried out on the prevalence rate of each of the sexually transmitted diseases dominant in the study area.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND TO THE STUDY

Sexually transmitted diseases (STDs) are a group of infectious or communicable diseases in which the primary mode of transmission is through sexual contact (Gilson and Mindel, 2001) and are among the major causes of illnesses in the world especially in the developing countries (WHO, 2001; Usanga *et al.*, 2010). Sexually transmitted diseases are spread primarily through person-to-person contact, although some of the pathogens that cause it, especially Human Immunodeficiency Virus (HIV) and syphilis, can be transmitted from mother to child during pregnancy and childbirth, and through blood products and tissue transfer (Nsuami, Sanders and Taylor, 2010; WHO, 2011). STDs can be divided into those caused by bacteria, viruses and parasites (WHO, 2011). They are most common in young sexually active people. It has been reported that the incidence declines with age and that adolescents and young adults experience the highest risk of exposure to STD (Richard and Jay, 2002; Mudassir, Sulaiman, Ahmadi and Khan, 2010).

The STDs are classified according to the type of organism causing the infection, which could be bacterial, fungal, viral or of parasitic origin. Some of the common STDs include: Bacterial vaginosis, herpes, Chlamydia, trichomoniasis, gonorrhoea, Hepatitis B virus, HIV and syphilis (WHO, 2006). More than 25 infectious organisms are transmitted primarily through sexual activity and studies reveal that STDs are among the many related factors that affect the broad continuum of reproductive health (Shafer and Moscicki, 2006; Okonko, Okerentugba, Adejuwon, and Onoh, 2012).

STDs are characterized as hidden epidemics of tremendous health and economic consequences that can lead to pains, organ damage, and serious disabilities such as blindness, deafness, infertility, insanity, paralysis and even death (Eng and Butler, 1997; Center for Disease Control, 2000). Probably of concern to all is that STDs, especially in pregnant women, have been associated with a number of adverse pregnancy outcomes including spontaneous abortion, stillbirth, prematurity, low birth-weight, post-partum endometritis, early onset of labor including premature rupturing of membranes, cervical and other cancers, chronic hepatitis, and pelvic inflammatory diseases in surviving neonates while in non-pregnant women, STDs can lead to chronic infertility (WHO, 2015).

In the developing countries, STDs and their complications rank in the top five disease categories for which adult seek health care (WHO, 2011). Some of these STDs when not controlled can lead to severe complications. In men, gonorrhoea and Chlamydia trachomatis can lead to epididymitis. Inflammatory urethral stricture may arise later from poorly treated gonococcal urethritis, which in turn may lead to urinary retention and possibly chronic renal failure if not properly managed. Some of the diseases may result to genital ulcers, with few cases developing severe sacral dysfunction resulting in urinary retention (Richard *et al*, 2002; Gerald and Steven, 2002). Consequences of these STD include AIDS, spontaneous abortions, stillbirths, perinatal and neonatal morbidities, chronic pelvic pains, dyspareunia, infertility, increased risk of ectopic pregnancy and even death (De Schryver and Meheus, 1990; Rice, 1991; Chamberlain, 1995; Robinson and Ridgeway, 1996; Otolorin, 1999).

Documented evidence indicates that STDs can be transmitted from a pregnant mother to the baby before, during or after the baby's birth and that some STDs (like syphilis) can cross the placenta and infect the baby in-utero (WHO, 2015). Other

STDs (like gonorrhoea, chlamydia, hepatitis B viruses and Genital herpes) can be transmitted to the baby during delivery through the birth canal (CDC, 2002; Okonko *et al.*, 2012). HIV can cross the placenta during pregnancy, infect the baby during the birth process and unlike other STDs, can infect the baby through breast feeding (CDC, 2006).

Female youths, particularly adolescent, are more vulnerable to risks of STDs from unprotected sexual activity both biologically and as a result of cultural norms that limit their ability to protect themselves (UNFPA, 2003). For instance, in adolescent females, the immature cervix is made up of constantly changing cells which make young females susceptible to certain sexually transmitted organisms (Romaniuk, 1968). Also, entrenched gender norms continue to constrain young women's control over their sexual and reproductive lives. Condom use is still infrequent during early premarital sex and is extremely low within early marriage (Biddlecom, Hessburg, Singh, Bankole and Darabi, 2007; WHO, 2007). Condoms are useful in decreasing the spread of certain STDs, such as chlamydia and gonorrhoea; however, it does not fully protect against other infections such as genital herpes, genital warts, syphilis, and AIDS (CDC, 2011).

STDs are preventable diseases and their prevention is even a priority for World Health Organization (WHO, 2011). For adequate prevention, sound knowledge of the disease is very crucial. Knowledge of STD complication may play an important role in encouraging safer sexual behaviours (Mmbaga, Leyna, Mnyika and Klepp, 2007). According to WHO (1999), an estimate of about 340 million new cases of curable STDs (Syphilis, Gonorrhoea, Chlamydia and Trichomoniasis) occur annually throughout the world in adults aged 15 to 49 years.

Nigeria has the highest prevalence rate of STDs in West African Sub-region and the third highest prevalence of any country in the world with a five percent population prevalence rate, that is, over 3.6 million people (UNAIDS/WHO, 2004). There are evidence of high risk of sexual behaviours and premarital sexual involvement among Nigerian adolescents (Unachukwu and Nwankwo, 1998). The tragedy of premarital sexuality among youths is that they engage in frequent sexual activities without proper knowledge of what is involved (Obikeze, 1997). Achalu (1996), maintains that those who engage in high risk behaviours such as indiscriminate sex with many partners or those who take partners from the streets have increased chance of being infected. Owolabi (1985) emphasizes that sexual practices such as anal intercourse, oral intercourse, homosexuality and deep kisses are associated with high risks of contacting these diseases especially the Virus that causes AIDS. Furthermore, Owolabi (1985) noted that the prevalence of STDS in Nigeria is due to sexual promiscuity, prostitution, homosexuality, lack of sex education, self-medication and drug abuse among others. Adolescents especially those in secondary schools are among the most sexually active segment of the population and are also more likely to engage in risky sexual practices that increase their chances of infections (Hopkins, 1998).

Historically, knowledge about STDs had been very low in communities with high prevalence of STDs. Some communities viewed STDs as unavoidable or as an "initiation into adulthood". In Tanzania, the knowledge of STD is very low (22.0%) (Mudassir *et al.*, 2010; Mmbaga *et al.*, 2007). Also in Nepal, the knowledge about STD is low (about 40%) (Jaiswal *et al.*, 2005). In Nigeria, 62% of young women and 40% of young men lack knowledge of STDs (National Population Commission, 2004).

Over the years Nigeria has recorded high rates of sexually transmitted diseases and it's still considered among the greatest challenges associated with youths' reproductive health in Nigeria (Sedgh *et al.*, 2006). Nigerian youths (young adults in the age bracket of 18-25 years) also form the majority of people exposed to the risk of contraction of STDs (Orji, Adegbenro, and Olalekan, 2005; Fatusi and Blum, 2008; Osakinle, Babatunde and Alade, 2013). Apart from the fact that these diseases are predominant among the urban dwellers, there is a rapid increase of these diseases to the rural areas as well. STDs campaign in Nigeria over the years has been greatly influenced by ethno cultural as well as language differences (Oluwabamide, 2007). The knowledge of STDs has increased tremendously. It was concluded that secondary school youth had good knowledge about STIs; however, the opposite is true when it comes to preventive practice (Aliyu *et al.*, 2003).

The situation of STDs prevalence in Kaduna Metropolis is alarming following the high population growth and concentration, present downturn in the economy and high level of poverty which is associated with ignorance and risky sexual behaviours. This is further buttressed by a statement from the Governor of Kaduna State during the state healthcare summit on sixteenth June that Kaduna State has the second highest HIV prevalence rate in the country (Garba, 2015). More importantly, report on STDs knowledge in Kaduna Metropolis is scanty and an insight to the perceptions of sexual behaviours and knowledge among the population is essential in offering integrated solution to complex issues related to STDs.

## **1.2 STATEMENT OF THE RESEARCH PROBLEM**

Sexually transmitted diseases constitute great medical, social and economic problems in Nigeria. Apart from the heavy affliction of urban dwellers, there is rapid

increase of these diseases to the rural areas as well. Also the social behaviour of the population significantly affects sexually transmitted disease rates as multiple sexual partners and unprotected sexual activity contribute to higher rates of STDs. This situation is serious enough to attract attention so that necessary control measures may be initiated in good time in order to avert the serious consequences.

Sexually transmitted diseases (STDs) are now the commonest group of notifiable infectious diseases in most countries, particularly in the age group of 15 to 50 years and in infants. Their control is important considering the high incidence of acute infections and complications, their socioeconomic impact, and their role in increasing transmission of the Human Immunodeficiency Virus (HIV) (De Schryver and Meheus, 1990). It is estimated that the number of pregnant women with STDs is increasing by about 250 million a year in the developed countries and double that number in the developing countries (UNAIDS, 2003).

Specifically, across the country, studies relating to prevalence of sexually transmitted diseases have been carried out. For instance, Ekanem, Ekott, Udo, Efiok, and Inyang (2012) carried out a study on the prevalence of sexually transmitted diseases in pregnant women, with the respondents drawn from the rural areas of Ikot Ekpene in Akwa Ibom State, Nigeria using clinical test results and well-structured questionnaire as the instrument of data collection administered to 560 pregnant women at the first antenatal visit. The findings revealed high prevalence of sexually transmitted diseases among our pregnant women with most of them being asymptomatic, also the prevalence rate of infection was inversely associated with increasing maternal age and advanced formal educational status.

Okonko *et al.*, (2012) researched the prevalence of sexually transmitted diseases (STDs) in Ibadan. The study revealed that the prevalent rates of the disease were inversely associated with increase in age, sex and marital status. The lowest infection rate occurred in married patients suggests that family life structure could be a major influence, while high rates observed in singles may suggest indiscrete sexual life patterns and multiple sexual partners for monetary rewards. They further recommend proper treatment of all STD cases with the use of correct and effective medicines, contact tracing, treatment of sexual partners and education of the general populace.

Akanama, Mfon, and Nyakno (2013) carried out a study on prevalence of syphilis and gonorrhoea in patients attending general hospital in Calabar. The study revealed a low level incidence, indicating a positive response to the state-wide awareness campaign on STDs, also the prevalent rate of infections were inversely associated with increase in age, sex and marital status. Adebowale, Titiloye, Fagbamigbe, Akinyemi (2013) also conducted a statistical modelling of social risk factors for sexually transmitted diseases among female youths in Nigeria. The study focused on female youths aged 15-24 and revealed Socio-demographic factors such as age, education, wealth index, marital status, shared toilet, residence, contraceptive use, and total lifetime number of sexual partners were found to be associated risk factors for contracting STDs.

Laah and Mamman (2002) carried out a study on prevalence of sexually transmitted diseases and HIV/AIDs in Kaduna State. Data for the study were obtained through hospital records and questionnaire survey. The result showed that STDs and HIV/AIDs infection has reached an alarming proportion and appears to be rising in the State. About 31% of the respondents have never suffered from STD. Although 4%

of the respondents that have been screened for HIV tested positive. HIV/AIDs prevalence is about 42% among the age group (25-34) and female gender tend to be more affected 52% than male 48%. Also married men were found to have higher proportion of HIV/AIDs than married women.

Aliyu *et al.*, (2013) carried out a study on knowledge, sources of information, and risk factors for sexually transmitted diseases among secondary school youth in Zaria, Kaduna State. Three senior secondary schools were purposively selected for the study and concluded that secondary school youth had good knowledge about sexually transmitted diseases. However, the opposite is true when it comes to preventive practice (use of condom). The study recommended interventions such as periodic publicity awareness and school seminars focusing on STDs prevention are needed to control the disease among the youth. Umma and Yunusa (2013) also conducted a study on awareness of the forms, symptoms, mode of transmission and control of sexually transmitted diseases among adolescents in Kaduna State, Nigeria. This study employed survey design in investigating the awareness of the forms, symptoms, modes of transmission, and control of sexually transmitted diseases (STDs). Major findings show that students know very little about the forms of STDs, the students have moderate knowledge of the signs and symptom of various STDs, their mode of transmission, and have poor awareness of the control measures toward STDs. Also, a significant difference exists between the boys and girls awareness of the forms and symptoms of STDs.

Ekanem *et al.*, (2012) study focused more on pregnant women with emphasis on the relationship between clinical test results and demographic variables of respondents in Akwa Ibom State. Okonko *et al.*, (2012) also focused on the relationship between clinical test results and socio demographic characteristics of

respondents in Ibadan. The study by Akanama *et al.*, (2013) focused on the prevalence of syphilis and gonorrhoea in relation to age, sex and marital status of the respondents in Calabar. Adebowale *et al.*, (2013) study focused solely on sexually transmitted diseases among female youths in Nigeria with emphasis on their socio-demographic characteristics.

While Laah *et al.*, (2002) focused solely on prevalence of sexually transmitted diseases and HIV/AIDs with emphasis on HIV/AIDs considering three cities (Kaduna, Kafanchan and Zaria) within Kaduna State. Aliyu *et al.*, (2013) focused more on knowledge of sexually transmitted diseases and risk factors among secondary school youths in Zaria, Kaduna State. Also the study by Umma *et al.*, (2013) focused solely on awareness, symptoms, mode of transmission and control of sexually transmitted diseases among adolescents in Kaduna State.

Studies have shown an exponential rate of increase in ST cases in Kaduna State with variations in terms of levels between settlements (Laah *et al.*, 2002). This could be attributed to high population growth and concentration, present downturn in the economy, high level of poverty, ignorance and risky sexual behaviours. More importantly, reports on STDs knowledge and prevalence in Kaduna Metropolis is scanty. It can be seen to the best knowledge of the researcher that from the previous studies reviewed above, limited research were carried out on knowledge and prevalence of sexually transmitted diseases in the study area, most of which are limited to adolescence, secondary school students and prevalence rate of STDs but the researcher will focus solely on knowledge and prevalence of STDs and the socio-demographic characteristics as factors influencing the knowledge and prevalence of sexually transmitted diseases in the study area.

In order to fill this existing gap in knowledge, this study addressed the following research questions:

1. What are the main types of STDs found in Kaduna Metropolis?
2. How much do people know about STDs in the study area?
3. What is the prevalence rate of STDs between 2010 and 2014 in the study area?
4. What are the factors influencing knowledge and prevalence of STDs in the study area?
5. Are there socio-economic differences in knowledge and prevalence of STDs cases in the study area?

### **1.3 AIM AND OBJECTIVES OF THE STUDY**

This study is therefore aimed at examining the knowledge and prevalence of sexually transmitted diseases in Kaduna metropolis, Kaduna state, Nigeria. This will provide a baseline information on the epidemiology of sexually transmitted diseases and other associated risk behaviours for designing, implementing and monitoring successful targeted interventions. The aim was achieved through the following objectives which are to;

- i. characterize the types of STDs found in Kaduna Metropolis.
- ii. assess the level of knowledge of STDs among the population in the study area.
- iii. examine the prevalence rate of STDs between 2010 and 2014 in the study area.
- iv. analyse the factors influencing knowledge and prevalence of STDs in the study area.

- v. examine the socio-economic factors influencing knowledge and prevalence of STDs in the study area.

## **1.5 SCOPE OF THE STUDY**

This study which is on knowledge and prevalence of sexually transmitted diseases in Kaduna Metropolis, Kaduna State, is concerned with the knowledge of STDs and other associated risk behaviours influencing its prevalence. Special interest was paid to how much people know about STDs and prevalence rate in the study area. The study location is Kaduna Metropolis which constitutes Kaduna North, Kaduna South with parts of Igabi and Chikun LGAs covering the following wards (Kabala Doki, Ungwan Dosa, Ungwan Kanawa, Ungwan Sarki, Ungwan Shanu, Badikko, Kurmin Mashi, Television, Tudun Wada, Ungwan Sanusi, Gonin Gora, Narayi, Sabon Tasha, Ungwan Boro, Ungwan Yelwa, Afaka, Mando, Nariya, Rigachikun and Rigasa).

Questionnaires were administered at the ward level for the 4 LGAs in the Metropolis which was used to select the respondents within the defined age group (15 and above) due to the fact that they have a high tendency of being sexually active and are facing myriad of health problems, particularly, risk of STDs. Since STDs in Kaduna State has remained higher than most states in the North West Zone, it is important to have an insight on the prevalence rate of the disease since 2010, however, the study covered a period of 5years (2010-2014).s

## **1.6 JUSTIFICATION FOR THE STUDY**

Sexually transmitted disease in Kaduna state has remained higher than those of other states in the North-West Zone with a prevalence rate of about 5.1% according to the 2010 National HIV Sero-Prevalence Sentinel Survey. It is important to have an insight on the prevalence rate of the disease since 2010 and also knowledge of the disease within the population. The importance of studying the prevalence of sexually transmitted diseases is potentially very important in shaping the behavioural characteristics of the society and provide decisive information for planning and evaluating the success of health services and interventions. The socio-demographic differential will reveal which segment of the population is affected mostly by STDs and their behavioural characteristics. Also by understanding the prevalence and its predictors, prevention programmes can better respond to any changes in the epidemiology of STDs within the population.

Sexually transmitted diseases continue to present major health, social and economic problems in the developing world, leading to considerable mortality and stigma. The prevalence of STDs among the population is necessary to evaluate the impact of the past and recent STDs reduction strategies put in place by Nigerian governments and international agencies.

The findings of this study could be relevant in establishing the mechanism for influencing the risk behaviour in Kaduna Metropolis in particular and Nigeria in general. It is intended to draw the attention of researchers, policy makers and others interested in population studies to another direction in our effort at finding lasting solutions to the problems of sexually transmitted diseases in Nigeria. This study also provides information in the field of demography and sociology as well as contribute

to knowledge which others may share. It may also serve as a model for survey on STDs in Nigeria and beyond.

## **CHAPTER TWO**

### **CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Sexually transmitted diseases (STDs) are a group of diseases acquired through any sexually related activity or behaviour. The route of transmission is largely dependent on individual behaviour (Centre for Disease Control, 2010; World Health Organization, 2011). The infection can be spread through oral, vaginal, or anal sex, or through contact with blood during sexual activity. Although uncommon, transmission can also occur through direct contact with affected body parts, tissue, or body fluids of infected persons. Some STDs such as hepatitis B can also be transmitted through sharing or using unsterilized needles (CDC, 2010). Vertical transmission, where the mother passes the infection to her child in utero or during childbirth, is also possible. HIV, hepatitis B and syphilis are infections which can be transmitted in this way (CDC, 2010).

The term STDs describes diseases caused by more than 30 different bacteria, viruses and parasites which are transmitted through sexual intercourse. The common feature of these infections is their mode of transmission and not their cause, origin, clinical features or consequences (WHO, 2011). The most common STDs are the bacterial infections such as chlamydia, syphilis, gonorrhoea and the viral infections such as human papillomavirus (HPV), HIV and hepatitis B (CDC, 2009). If not detected on time or left untreated, these infections can have long-lasting adverse effects. STDs such as HIV and HPV can be asymptomatic over long periods of time while the signs and symptoms of others such as genital herpes can be mild and passing. As a result no attention is paid to them leading not only to delayed diagnosis

and treatment, but also increasing the chances of infections being passed on unaware during unprotected sexual intercourse. If untreated, STDs can lead to complications such as pelvic inflammatory diseases, ectopic pregnancies or infertility in women, or epididymitis in men (MacDonald and Brunham, 1997; Simms and Stephenson, 2000).

In its guidelines for surveillance of STDs published in 1999, the WHO described STDs as a major global health problem leading to acute illness, long-term disability and death, with serious medical and psychological consequences for millions of men, women and infants (WHO 1999). Some common STDs include the following; Gonorrhoea, Syphilis, HIV, HPV, Chlamydia, Hepatitis B, Genital herpes and Trichomoniasis. HIV and syphilis are life threatening, hepatitis B, HPV and HIV predispose to malignancy, and gonorrhoea and chlamydia affect fertility (CDC, 2013). Chlamydia, gonorrhoea and syphilis can be cured using antibiotics, while HIV is treatable but not curable. Most Hepatitis B and HPV infections are cleared by the immune system within a few months (Kirwan and Herrington, 2001; WHO, 2011). Chronic forms of Hepatitis B are however not well treatable and persistent HPV infections can cause cervical and other forms of cancer. Furthermore, HPV infection can cause genital warts, which can be treated using topical creams or cryotherapy, but may also disappear on their own (WHO, 2011; CDC, 2013).

## **2.2 Global Burden of STDs**

The highest burden of curable STDs and HIV/AIDS is shared by the poorest countries of the world. WHO had estimated in 1999 that a total of 340 million people were newly infected with four STDs. Out of this 12 million with syphilis, 92 million with Chlamydia, 62 million with gonorrhoea and the highest number of 174 million

with trichomoniasis. It was estimated that a total of 150 million cases occurred in Sub-Saharan Africa and 65 million in south and Southeast Asia (WHO, 2001).

Similarly, the HIV prevalence among adults is 0.1% among developed countries, whereas 7.5% to 8.5% in worst hit areas of Africa. African countries occupied 70 % (28.5 million) of the global HIV burden. It is estimated that every day 14 000 individuals become infected with HIV with almost all cases occurring in low-income countries and majority (86%) of them are adults (WHO, 2003). The economic and social cost of HIV/AIDS is immense. STDs related complications are the fifth major cause for seeking care when it comes to adults . Among young women, STDs is the second major cause of healthy life year's loss (Shrestha, 2002). HIV becomes the main killer of adults in their prime productive age. Still more, HIV/AIDS is the leading cause of DALYs by 7.4% in adult males. Among adult females, HIV is the second greatest cause of DALYs (7.2%) after unipolar depressive disorders. In the highly HIV affected countries of Africa like Botswana and Zimbabwe, an estimated decrease in life expectancy by 40 years, also now nearly half of deaths among adult people is due to HIV/AIDS. These countries experienced a 2 to 4% drop in GDP. In addition an estimated 14 million children become orphans, out of them 11 million live in Africa (UNAIDS, 2002; WHO, 2003).

### **2.3 STD TRENDS IN DEVELOPING COUNTRIES**

STDs affect all age groups, from unborn babies to the elderly. They contribute largely to preventable causes of infertility in young people. They rank fifth as the most common reason why adults seek care in developing countries (WHO, 2013). Despite the broad age distribution of STDs, different age groups are not affected equally. Yearly, 448 million new infections of curable bacterial STDs (chlamydia,

gonorrhoea, syphilis, and trichomoniasis) occur among youths aged 15-49 years worldwide. A larger proportion of those affected in this group are young adults. This has increased from 340 million (WHO, 2001).

Young adults aged 15 to 24 years constitute about 18% of the world's population which is 1.1 billion young adults. The majority (85%) of young adults reside in developing countries. About 255 million of the majority of young adults lives in 19 countries with the highest poverty rates. While 15 out of these 19 countries are in Sub-Saharan Africa which includes Nigeria (Advocates for Youth Affairs, 2004).

A comprehensive review of literature by the WHO assessed factors affecting reproductive health of adolescents in developing countries. Over 11,000 articles were found but only 1.4% of them met the basic criteria for review. Of the 158 articles chosen, 6 were from Nigeria. The review concluded that factors which mattered most were: education and schooling; knowledge and attitudes related to condoms and contraception; perceived sexual behaviour of friends; and partner approval/support for using condoms and contraception (Blum, 2004).

Incidence of STDs in Africa was estimated to be 69 million new cases, second highest to South and Southeast Asia. Sub-Saharan Africa ranked the highest in number of cases at 119 cases per 1000 persons. A significant amount of data has been generated from different African countries, including etiology, syndromic STD management for specific populations. Studies also analysed socioeconomic and geographical factors. Many countries in the continent lack functional national surveillance systems that monitor STD burden in the region (WHO, 2001)

A commendable effort towards a national STD surveillance in South Africa was the use of sentinel studies which reported high burden of STDs in the country (Johnson, Coetzee and Dorrington, 2005). Data from African countries differ in diagnostic standards used, and populations considered in a research study. This defect may be attributed to lack of adequate skilled personnel and resource to analyse and apply the data. A total of eleven countries published prevalence of syphilis amongst pregnant women attending antenatal clinics from 2005 to 2006. Results ranged between 0.9% in Botswana to 5.3% in Madagascar. This data is representative of less than 25% of a continent with a high burden of STDs (WHO, 2008).

#### **2.4 PREVALENCE OF STDS IN NIGERIA**

Nigeria presently lacks a national surveillance system to monitor trends in sexually transmitted diseases. This is due to many factors including inadequate diagnostics tests for diagnosis of STD. WHO syndromic management is the treatment guideline adopted by many hospitals. This management entails treatment of suspected syndromes of STDs with a pre-outlined antimicrobial treatment without laboratory diagnosis or confirmation. This makes it arduous to collect appropriate data on rates of specific STDs. Since the advent of HIV and tremendous support from international non-profit organizations, there are services for testing and treatment of the incurable disease available to the general population. Available resources for STD management and its delivery to young adult is still a long way from being satisfactory. This is a cause for concern bearing in mind that other STDs are a strong contributing risk factor for acquisition of HIV/AIDS.

The NDHS (2008) survey based its STD prevalence on the self-report of STD symptoms from men and women within the past 12 months. Women had a higher rate of 5% compared to men at 3%. Women in urban areas had higher rates compared to their counterparts in the rural areas (National Population Commission, 2009). Prevalence of HIV/AIDS by the National Agency for the Control of AIDS (NACA). The national prevalence has declined from 6% in 2001 to 4.1% in 2010. Prevalence of young adults aged 15-24 years is extrapolated from women who are seen at the antenatal clinic (ANC). The prevalence rate in this age group has also declined to about 4.3% and has plateaued since then (National Agency for the Control of AIDS, 2012). Another study in south-south Nigeria (Okonofua *et al.*, 2003) studied prevalence of STDs in young adults through an intervention program that engaged 12 schools. Intervention in the participants aged 14-20 years was through education and community participation. Prevalence of self-report STDs was recorded to have decreased in the intervention group from 33.1% to 22.0% and 31.1% to 28.5% in the control group of schools.

## **2.5 KNOWLEDGE, ATTITUDES AND PERCEPTION OF STDS IN NIGERIA**

Most of the articles reviewed for this study examined HIV/AIDS as the STD of interest. Eight articles assessed knowledge of STIs along with other objectives such as perception of risk, prevention methods adopted by young adults and success of program intervention. In a group of schools in western Nigeria, the knowledge of HIV/AIDS and its different routes of transmission were estimated between 61.7% - 87.8% for both sexes. The use of abstinence as an endorsed method of prevention was

highest at 88% amongst participants aged 10-19 years. Perceived reasons for not adopting abstinence by non-abstinent young adults included: peer pressure, sexual urges and financial benefits (Oladepo and Fayemi, 2011).

Young adults had a fairly good knowledge of HIV/AIDS and its severity but perceived themselves to be at low personal risk and colleagues in a study on secondary school children. This finding is in keeping with what has been reported about teenagers in the developing world (Oyeyemi, Abdulkarim and Oyeyem, 2011). Most of the participants got information about STD mostly through mass media, internet, television and brochures. It was reported that females were more educated by siblings, physicians, and parents than males. Though they wanted to know about proper use of condom as prevention, most participants rejected the idea of it being taught or distributed in schools. Overall, there was higher knowledge about HIV/AIDS and higher rate of abstinence among females than males (Oyeyemi, Abdulkarim and Oyeyem, 2011).

Different studies have shown high level of awareness of HIV/AIDS in adolescents as high as 92.0% and the mass media as the highest source of information. This means of education has not been able to give comprehensive information about the disease and answer misconceptions. About 70% had good knowledge of the disease while others had some misconceptions about its route of transmission such as mosquito bites or seating on toilet seats. A higher percentage of 48.3% perceived themselves as not being vulnerable to acquiring an infection despite high awareness of the disease. About one third (35.7%) believed they were vulnerable while 16.0% were unsure if they were vulnerable or not. Testing was generally low among respondents which were partly attributed to the fact that free testing was not being readily available (Asekun-Olarinmoye and Olajide, 2011). Articles reviewed agree that high

awareness of HIV/AIDS but low perception of personal risk impedes a positive behavioural change suggesting that more intervention may be required to increase awareness as a means of inciting change (Durojaiye, 2011).

Awareness seemed to have increased from earlier studies in 2006 from 48-52% to 87.8% - 92.0% (Ajuwon, Olaleye, Faromoku and Ladipo, 2006; Asekun-Olarinmoye and Olajide, 2011; Oyeyemi *et al.*, 2011). Nigeria like many other countries is culture bound and issues surrounding sex are not openly discussed. Sexuality education is not incorporated in many school curriculums and most young adults are left to fill in the gaps from peers who may not have the right information. The USAID evaluation of adolescent reproductive sexual health (ASRH) models used in Nigeria reports that the family life HIV education (FLHE) has the ability to reach all in school adolescents but has faced challenges through inadequate training of teachers and availability of the program in school curriculums. A review of sexuality education and its benefits to in school and out of school young adults reported increase in awareness of HIV, and positive attitude to people living with HIV/AIDS (PLWHA) (James, 2012)

The last NDHS survey in 2008 assessed knowledge, transmission and prevention methods in youth aged 15-49 years. Youths who have never been married and/or who are non-abstinent have higher awareness of HIV/AIDS than those who were married or abstinent. There were more men (94%) than women (86%) that had heard about HIV/AIDS and overall knowledge was 87% in young adults aged 15-24%. Awareness of HIV/AIDS is highest in the southern part of the country and awareness has been associated with higher uptake of prevention methods (NPC and ICF Macro, 2009).

A study conducted in western Nigeria to examine urban and slum young adults inhabitants reported high rate of HIV/AIDS. They had little knowledge about other sexually transmitted diseases and misconceptions about diseases such as gonorrhoea, warts, and syphilis (Adedimeji, Heard, Odutolu, Omololu and Adedimeji, 2008).

## **2.6 RISK AND PROTECTIVE FACTORS IN NIGERIA**

Alongside general risk factors for STDs in young adults such as: a higher incidence of STDs, and experimentation with high risk sexual practices, there are unique risk factors faced by the Nigerian population. There is diversity in what is culturally acceptable across the nation and this has influenced age of sexual debut, exposure to contraceptive methods, and female gender empowerment in different zones. In Nigeria, it is illegal to have sexual relations with same sex. Such stringent laws make it more tasking to reach out to sub-groups within the young adult population. Homosexuals face a jail term of 14 years by the Nigerian constitution. There is little or no report of transgender except for a few who live outside the country. There is still a lot of stigma associated with other groups like; people living with HIV/AIDS (PLWHA), and female sex workers (FSW) (James, 2012).

### **2.6.1 Sexual Debut**

Age of first sexual intercourse varies between gender and across region. Overall, females between the ages 15 – 24 years had an earlier median age of sexual debut than males. Before the age of 24 years, 16.2% of females in the survey had had their sexual debut compared with 6.2% of males. Women also had earlier median age at marriage and shorter amount of years between sexual debut and marriage but men had an average of 6 years between sexual debut and marriage. Women in the urban

settlements had a median age of first sexual intercourse 3 years later than those in the rural settlements and by region, females in the northwest part of the country had a sexual debut of 15.4 years while it was 20.4 years for women in the south east. Later age of sexual intercourse was also associated with higher level of education and higher socio-economic class. The reverse is the case for men in terms of region, men aged 25-59 in the south eastern parts had a lower age at sexual debut than their counterparts in the North West region (National Agency for the Control of AIDS, 2012).

### **2.6.2 Family**

Different studies have tried to associate the type of family setting with sexual behaviour or practices of young adults and they sometimes contradict each other. Families have an important role to play in enlightening the young adults about sex education, STD prevention methods and contraception (Dienye, 2011). Education is highly valued in Nigeria but sex education is not a widely accepted approach as cultures in most regions largely frown at pre-marital sexual intercourse, though the percentage of adolescents is consistently rising. Students from a group of different secondary schools in the north central Nigeria as reported by Slap, Lot, Huang, Daniyam, Zink and Succop (2003) showed that higher sexual activity especially in students from polygamous setting who had lower scores of parent connectedness, dead parent, and a lower socio-economic status. A later study found no association between polygamous family and sexual practice of young adults but associated higher sexual practices with young adults from affluent homes or lower educational status (Isiugo-Abanihe, 2003).

### **2.6.3 Region**

In all regions, young adults aged 15-24 years were reported by the NDHS (2008) to have a generally low prevalence of HIV testing at 10%. In the south, they were reported to have a higher rate compared to those in the north and this finding was also reported to be higher in men (7.2%) than women (3.1%). A study which analyzed correlates between region of residence and sexual practices also showed higher prevalence of testing in urban dwellers than rural dwellers (Nwachukwu and Odimegwu, 2011). This may be explained by more availability of intervention programs and health care facilities.

### **2.6.5 Age**

Both STDs and HIV are disease mainly afflicting adults. It is estimated that out of 40 million HIV positives, 11.8 are in the 15 to 24 age groups and that every day an additional 6000 youths become infected with HIV. The factors found are early sexual initiation among youth, their lack of knowledge on transmission, misconceptions and that very few seek treatment for STD, when they got infected (UNICEF, 2002). Sexual activity at an early age is associated with several serious risks and complications. Also majority of sexually active adolescents are unaware of these risks or are dangerously misinformed about the consequences of their behaviour (Arkutu, 1995).

### **2.6.6 Gender**

In general, reports show that higher proportions of males are being infected with STDs/HIV than females. But in Africa five to six girls of 15 to 19 years were infected per one boy of the same age (UNICEF, 2002). Gender based power

imbalances have been cited as a root cause for this which is facilitating rapid transmission of STDs among women since they lack power to negotiate for safer sex in one hand and are being hindered from treatment, care and support on the other hand. Traditionally, men have been seen as having uncontrollable sexual urges which put them in danger of STDs/HIV infection when they strive to maintain or attain to that perception (Rao, 2000).

Women are vulnerable and are usually victims of sexual or domestic violence. Cultural norms also condone extramarital affairs by married men as well as marriage to many wives which further promotes transfer of infection to women than men. Gender violence such as rape against women seems socially acceptable and victims were sometimes blamed for such acts (Barnett, 2009). Male control also influenced the use of condoms in relationships between men and women. Refusal of women to have sex without condoms sometimes led to dissolution of such relationships. The anatomy of the female body also puts them at higher risk of infection than men in heterosexual intercourse. Men are more likely to seek treatment for a STD than women but usually from informal sources such as traditional healers whereas women who were less likely to seek treatment do so through formal sources like clinics (Mmari, Oseni and Fatusi, 2010). Men also felt less comfortable being treated by a female provider and favoured traditional healer over clinic because of faster service and cheaper services.

#### **2.6.7 Socioeconomic Status**

Lower socio-economic class is associated with earlier age of sexual debut, less condom use in sexual activity and less information about STD prevention (Isiugo-Abanihe, 2003). Poverty and high rates of unemployment among young adults

increase the likelihood of sexual activity for financial benefit or sex work. Socio-economic factors affect the occurrence of STDs and the incidence is higher among single, divorced and separated than among married people and in individuals of lower than higher socio-economic status. Some diseases such as chancroid are associated with poverty and poor hygiene (Obionu, 2001).

Booyesen and Summerton (2002) observed that poverty increases the vulnerability of women to STD by resulting, among other things, in unsafe sexual practices, often due to a lack of knowledge, lack of access to means of protection, and inability to negotiate condom use with sexual partners as a result of entrenched gender roles and power relations. In this respect, attention has been drawn on the 'sugar-daddy' syndrome, whereby schoolgirls enter into sexual relationships with older, wealthy men who can assist them with school related expenses or the purchase of material goods (Isiugo-Abanihe, 1993). The rising level of female sexual activity is also a function of the need to achieve or maintain an upscale life-style or for the longer-term objectives of establishing contacts with wealthy or prestigious people, and of obtaining assistance with finding a good job (Meekers and Calves, 1997).

#### **2.6.8 Condom Use**

It is estimated that consistent condom users are 10 to 20 times less likely to be infected with HIV and STDs than non-condom users (Pinkerton and Abramson, 1997). That means the chances of transmission are greatly reduced by condom use.

The knowledge of contraception through traditional or modern method is widespread among both sexes (72-90%). Despite knowledge and awareness of STD/HIV in young adults, condom use as a means of protection is relatively low because of low personal risk perception. A Nigerian study evaluated predictors of

condom use among never married males aged between 15-24 years. It reported 43% of participants to be sexual active and 15% of this proportion used a condom at first intercourse. Use of condoms was much lower among males aged 15-19 years than those aged 20-24 years (Oyediran, Feyisetan and Akpan, 2011).

### **2.6.9 Health Care System**

Rural communities have less access to STD/HIV specialized centres that are better equipped to manage STDs and provide antiretroviral therapy for infected persons. Young people in the urban settlement are more exposed to the media and better education through which they are enlightened about STDs and its prevention (Ankomah Omoregie, Akinyemi, Anyanti, Ladipo and Adebayo, 2011).

### **2.6.10 High Risk Groups**

Many observational studies and intervention programs are conducted in school based settings. High risk young adults like men who have sex with men and female sex workers, are underserved. Other special cohorts of young adults in prisons, military personnel, and out of school adolescent are also underserved. Studies on female sex workers (FSW) reported high awareness of associated risk and prevalence of HIV/AIDS. FSW prioritized the needs of their clients above the need to protect themselves against infections through use of condoms. Some knowing their positive status still continued to have unprotected sexual intercourse with clients (Ankomah *et al.*, 2011).

## **2.7 CONTROL OF STDs**

Control of STDs include which HIV/AIDs is very important in decreasing their incidence and prevalence. In general guidelines for the control of STDs include actions at the level of host, infective agents and transmission (Lucas and Gilles, 2003).

### **2.7.1 Host**

Till date there is no known immunization of host against any of the STDs except for HBV infection. Chemoprophylaxis may be of some use but it may result in danger of emergence of resistant strains of the pathogens involved or in supervision of the acute clinical manifestation to remain silent till late complications if used wrongly (Lucas and Gilles, 2003). Control of STDs is important in curbing HIV transmission (David, 2008). Early diagnostics and treatment of all infected persons, and their sexual contacts traced, screened and epidemiologically treated as necessary is extremely important (Lucas and Gilles, 2003; Park, 2007; Dadian, 2008).

Sexual health promotion by incorporating into primary health care framework is actually invaluable. Records of surveillance and information about sexually transmitted diseases can be used as a way of minimizing STDs (Lucas and Gilles, 2003). Steps to develop youths, alleviate poverty, reduce idleness and discourage use of pornographic materials should be utilized. Legislation as a way of discouraging bad practices like sexual exploitation of minors, trafficking of women for commercial sex purposes etc.

### **2.7.2 Infective Agent**

At this level it is important to eliminate agents in the reservoir of infection which is exclusively human, especially untreated sick patients or those with unapparent infections, more especially women. The identification and treatment of promiscuous people, especially females, and other infected people is extremely important (Lucas and Gilles, 2003). In resource poor setting, WHO encourages syndromic management of STDs with genital lesions, this offer immediate diagnosis and treatment without requiring extensive drugs and time consuming lab tests or advanced skills (Dadian, 2008).

The cultivation of behaviour of use of both male and female condoms diminish but not eliminate the risk of infection. It has been suggested that washing of the genitals with soap and antiseptic creams immediately after sex may give partial protection (Lucas and Gilles, 2003).

### **2.7.3 Transmission**

This is done through sex education about dangers of promiscuity, abstinence during separations from spouses and regular sex partners. If however a spouse or sex partner happens to be infected, it is important to notify the other spouse or partner and refer for investigations and treatment (Lucas and Gilles, 2003).

## **2.8 SEXUAL HEALTH PROMOTION IN NIGERIA**

The use of all forms of media in Nigeria has gone through varying stages like in the rest of the world. Advances in technology have largely been influenced by the developed countries and globalization. A survey assessed the relationship between old gender inequities and new media. Analysis showed that more men read newspaper or

listened to radio compared to women. Women were also more likely to get information solely from the television than men. The study showed that new media technology is yet to tackle issues of gender equity in regards to information. Despite equal access to information, women seemed to be getting less of it (Hornig, Kern-Foxworth and Zall, 1993).

However, in the past few years, use of social media has changed the face of communication in nearly all sectors of business. A recent survey was conducted in 2012 by the broadcasting board of governors to study the use of social media in the country. In their findings, it was noted that there a vast increase in “connectedness” between people in the past few years. In the past, there was a huge gap between Hausa-speakers who resided more in the northern region and non-Hausa speakers. There are now more Hausa individuals in possession of a mobile phone.

The study has reported an average of 20% frequent use of internet weekly. This varied according to age, gender and location. Use of internet has also increased due to use of smart phones which are more accessible. The use of internet via mobile phone was also noted for activities such as news sharing by SMS, Web, and social networking. Importantly, television and radio broadcast media still dominate for news. Through the survey, almost 9 in 10 Nigerians (87.4%) say they listened to radio in the past week, and about 7 in 10 (72.5%) watched television. Radio broadcast still dominates the media followed competitively by television broadcast. The use of mobile devices is largely increasing across all demographics which will translate into further evolution in the use of media in the future (Governors Broadcasting Board of Nigeria, 2002).

### **2.8.1 Use of Media in Adolescent Sexual Health Promotion**

Stigma is a factor affecting sexual health of young adults. People living with HIV/AIDS (PLWHA) are still rejected and ostracized and this has affected uptake of treatment services for some positive. It has been shown that increase in awareness of people through mass media has a positive effect on behaviour change (Fakolade, Adebayo, Anyanti and Ankomah, 2010). In a bid to improve quality of health promotion in Nigeria, a national health promotion policy was developed in 2006. This resulted from external criticism which highlighted the major weaknesses in this sector. A few are: poor communication design; lack of management and system planning of health education interventions and lack of resources from the government to support health education/promotion (Federal Ministry of Health, 2006).

Apart from minimal resource and little coordination among all tiers of governmental health and non-governmental organizations, there is also an observed pattern in quality of health messages. This is not peculiar to Nigeria alone but also to the rest of sub-Saharan Africa. Health messages from fifteen African countries were assigned six codes; sources, consequences, preventive means, self-efficacy, benefits and barriers. Health messages addressed barriers the least. The barrier frame code involved messages to help overcome problems hindering prevention (Beaudoin, 2007). An example of a barrier frame would be (Condoms are readily available at your local health clinic). Use of condoms is low among young adults in Nigeria and pattern of message delivery may be a contributing factor (Beaudoin, 2007).

An extensive report on the media and sexuality/sexual rights/sexual health (S/SR/SH) in Nigeria showed sexuality education as the least covered aspect of reproductive health in media. The study suggests a need for more information on

issues of S/SH/SR for more public enlightenment. Particularly for young adults, the study suggested a magazine with knowledge-based information appropriate for this target group (Africa Regional Sexuality Resource Centre, 2005).

Based on the Nigerian national dailies report over a period of 6 months, sexual education was the least and the HIV was the highest. Sexual health promotion in Nigeria appears to be skewed towards just HIV education without adequate education on sexuality and prevention of other STDs. Less emphasis was also placed on issues surrounding prostitution, and sexual harassment that affect females more. This further emphasizes the barriers women face in negotiating condom use in this patriarchal society.

## **2.9 KNOWLEDGE AND PREVALENCE OF STDS IN NIGERIA**

Many researchers have carried out studies on sexually transmitted diseases in Nigeria some with a view to looking at knowledge of sexually transmitted diseases while others on risk factors and prevalence of the diseases. Knowledge on facts concerning the disease becomes very essential towards improvement and maintenance of good health. The level of knowledge among a population can have influence on their perceptions and behaviours towards health.

In an FGD conducted in Benin City among adolescents concluded that the participants had appreciable knowledge of some STDs by name, while majority mentioned gonorrhoea, HIV/AIDS and syphilis, also few of them mentioned other STDs like chancroid, scabies, trichomoniasis, pubic lice and candidiasis (Temin, 1999).

However, a similar study conducted about knowledge on HIV/AIDS in June 2008 in Lagos among tertiary school students of average age 23years, almost all of the respondents were knowledgeable. Most undergraduate students of south-western institutions in Nigeria identified sharing of blades for shaving, circumcision or minor surgery, sharing of injection needles (94.0%) and indiscriminate unprotected sexual intercourse (97.4%) without condoms as modes of HIV transmission. About 25% did not know that there is no cure for HIV/AIDS and it was not possible to tell precisely if someone has been infected with HIV by mere looks. About 65% of the undergraduate students in one study believed that HIV could be transmitted through French kissing (Durojaiye, 2009).

In another study carried out in Zaria, Kaduna State Aliyu *et al.*, (2013) concluded that secondary school youth had good knowledge about sexually transmitted diseases but contrary to preventive practice (use of condom). The study focused on knowledge, sources of information, and risk factors influencing sexually transmitted diseases among secondary school students. The study recommended interventions such as periodic publicity awareness and school seminars focusing on STDs prevention are needed to control the disease among the youth.

The awareness of the forms, symptoms, mode of transmission and control of sexually transmitted diseases among adolescents in a study conducted in Kaduna State shows that students know very little about the forms of STDs, the students have moderate knowledge of the signs and symptom of various STDs, their mode of transmission, and have poor awareness of the control measures toward STDs. There also exist a significant difference between boys and girls awareness of the forms and symptoms of STDs. This study employed survey design in investigating the

awareness of the forms, symptoms, modes of transmission, and control of sexually transmitted diseases (Umma *et al.*, 2013).

Arowojolu, Iiesnmi, Roberts and Okunola, (2002) carried out a study in south-western Nigeria among youths, it was established that the use of condoms was low (36.4%) at first sexual experiences. About 30% of the sexually active respondents always use condoms mainly to prevent STDs/HIV and pregnancy while 20% had never used condoms. Trust in partner, non-availability of condoms and enjoying sex without condom were the main reasons given by those who did not use condoms. Majority (53.3%) had not changed dating behaviours as a result of HIV/AIDS. About 37.9% of the sexually active respondents had two to three sexual partners in lifetime. In the year preceding the study, more than half (52.7%) had two or more sexual Partners. Notably, about 10% had more than ten lifetime sexual partners. About half (52.3%) of them sometimes refuse sex without a condom unlike about 20% among them. Only a few (4.8%) had sex with complete stranger or commercial sex worker. Majority (96.3%) feel that safe sex is responsibility of both partners. Less than half of them discussed and agreed on use of condoms with partners.

Also another study carried out by Okonko, Okerentugba, Adejuwon and Onoh (2012) on prevalence of sexually transmitted diseases in Ibadan found out that diseases were inversely associated with increase in age, sex and marital status. The lowest infection rate occurred in married patients suggests that family life structure could be a major influence, while high rates observed in singles may suggest indiscrete sexual life patterns and multiple sexual partners for monetary rewards. The study calculated various disease prevalence, where STD was calculated by using patients with positive samples and the total numbers of patients enrolled in the study.

The data was subjected to descriptive statistical analysis using SPSS to determine any significant relationship between infection rate, age and gender.

Likewise, a study on prevalence of syphilis and gonorrhoea in patients attending general hospital in Calabar, revealed a low level incidence, indicating a positive response to the state-wide awareness campaign on STDs, also the prevalent rates of infections were inversely associated with increase in age, sex and marital status. This study calculated various disease prevalence, where STD was calculated by using patients with positive samples and the total numbers of patients enrolled in the study. The data was subjected to descriptive statistical analysis using SPSS to determine any significant relationship between infection rate, age and gender (Akanama *et al.*, 2013).

Social risk factors for sexually transmitted diseases among female youths in Nigeria, revealed socio-demographic factors such as age, education, wealth index, marital status, shared toilet, residence, contraceptive use, and total lifetime number of sexual partners were found to be associated risk factors for contracting STDs. Most importantly, the data confirmed the considerable impact of wealth index and awareness of HIV/AIDS as important predictors of STDs acquisition. The study suggested providing free condoms, along with teaching the importance of abstinence and improving knowledge of HIV/AIDS to help reduce the risk of STDs transmission. The study deployed the use of logistic regression model by including the socio-demographic factors to show significant effects on the age-adjusted models (Adebowale *et al.*, 2013).

## **CHAPTER THREE**

### **STUDY AREA AND RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter deals with the characteristics of the study area on one hand which encompasses location, climate, vegetation, geology, drainage, soils, people and culture, economy and health services. It also deals with the methodology of the study on the other hand.

#### **3.2 THE STUDY AREA**

##### **3.2.1 Location**

Kaduna Metropolis is the capital city of Kaduna State and the fourth largest city in the country. Kaduna metropolis is located between Latitude  $10^{\circ}27'0''\text{N}$  and  $10^{\circ}36'0''\text{N}$  and Longitude  $7^{\circ}22'30''\text{E}$  and  $7^{\circ}30'0''\text{E}$  (Figure 3.1). It occupies an area of about  $260\text{Km}^2$ ; the distance between the eastern and western limit of the city is approximately  $13.7\text{Km}$  (Ajibuah 2008).

The Metropolis is made up of two main Local Government Areas (LGA); Kaduna North, and Kaduna South, but also extends to Igabi and Chikun LGAs. The parts of Igabi that falls within the metropolis are; Rigasa, Rigachikun and Mando, while Zokoriko, kudenda, Nassarawa, Gonin-Gora, Ungwan/Romi, Ugwan/Yelwa, Ugwan/Sunday, Sabon Tasha, Ugwan/Boro, Narayi, Ungwan/Maigero and Bayan Dutse are the parts of Chikun LGA respectively.

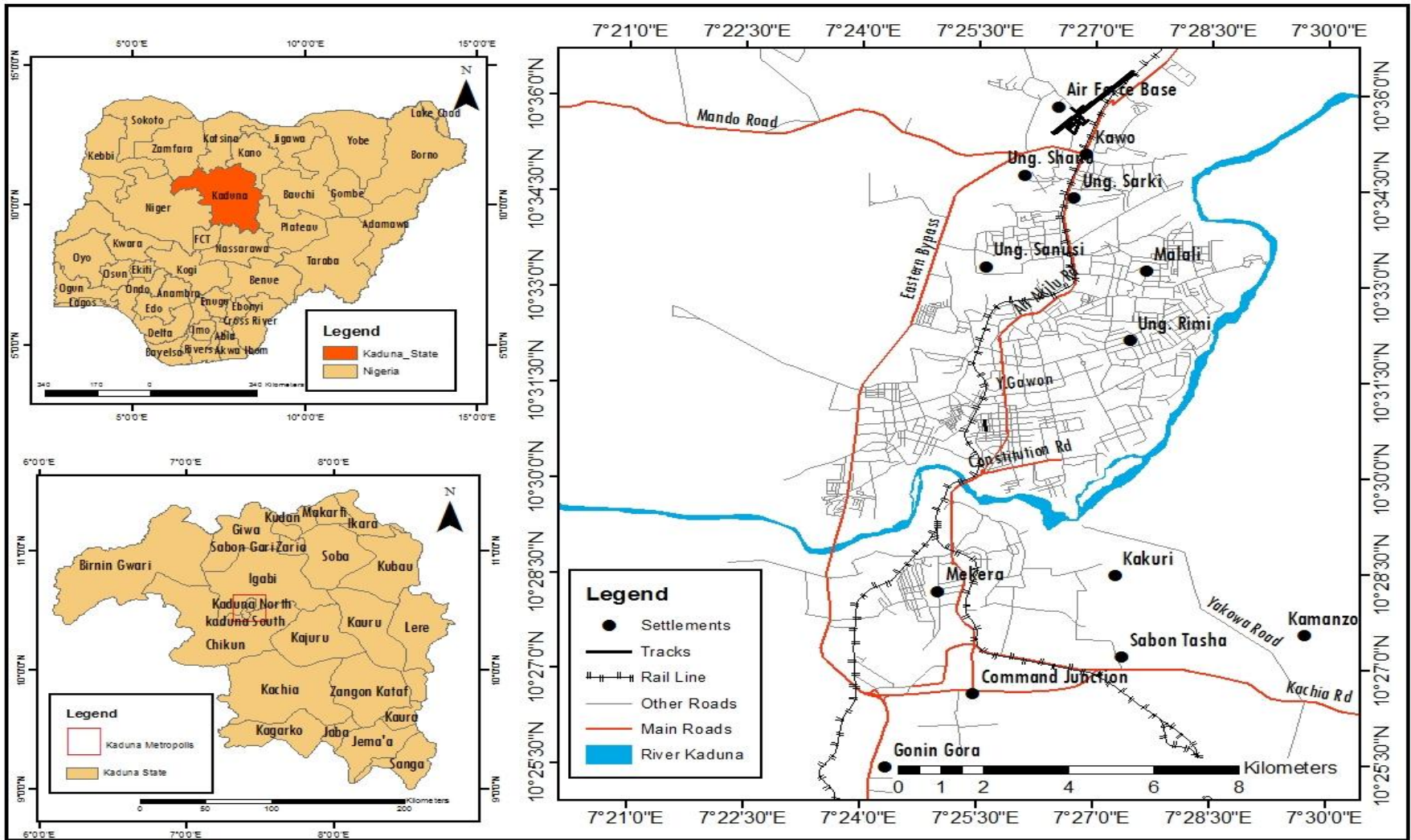


Figure 3.1: Location of Kaduna Metropolis  
 Source: Adapted from the Administrative Map of Kaduna State

### 3.2.2 Geology

The geology of the study area is part of the basement complex geology of central Nigeria. It is composed of older high grade metamorphosed gneisses interspersed by belt of young meta-sediment of mainly quartzites and schist. The region is underlain by older granitic crystalline, metamorphic rocks of precambrian to low Paleozoic age (Oguntoyinbo, Areola and Filani, 1983). It also consists of gneisses which has suffered intense weathering and have remained stable for millions of years. The prolonged weathering under tropical bioclimatic condition has produced rolling plains dotted with residuals of different origin.

Kaduna metropolis within Kaduna State lies on the high plains of Hausa land, of height ranging from 550 to 750meters showing a general regional slope to the south and a relative relief of 30 to 45 meters. The plains on which Kaduna is situated are parts of the vast, gently undulating plains scenery, which extends almost unbroken from Sokoto to Lake Chad and beyond, from South of Kaduna to the Tidueddi Scarp near Agades. At first sight, they seem remarkable only for their usual monotony and apparent geomorphic simplicity. However, a closer field examination reveals considerable variation in both surface form and composition (Oguntoyinbo, Areola and Filani, 1983).

Sedimentary rocks occur as loose sediments or superficial deposits of clay, laterite and alluvion restricted within flood plains of stream courses. These units of formation which are widespread within Kaduna Metropolis are found to be useful for agricultural purposes (Ali, 2004).

### **3.2.3 Relief and Drainage**

The area is drained by river Kaduna and characterized by high stream frequencies and drainage density. The river drains mostly during the raining season, and characterized by seasonal and ephemeral attributes. It takes its source from the highland of Jos. It is a great resource for various water usage (Oguntoyinbo, Areola and Filani, 1983).

### **3.2.4 Climate**

Kaduna Metropolis has a tropical continental climate type characterized by wet and dry season. The tropical continental is more pronounced in the dry season particularly in December and January. The dry season is dominated by the north-east trade wind called Harmattan which prevails between November to February. The dry season is also rainless from October to April. The wet season is dominated by the tropical maritime trade winds which starts around May to October. The area has a mean daily temperature showing a major peak in April. As such, temperatures are hot all year round except for the dry cool and dusty months of harmattan in November to February. The maximum temperature seldom falls from about 36°C in April to about 27°C in the heart of rainy season (August-October). The annual rainfall is about 1000mm (Ayoade, 1988).

These seasons are controlled by the apparent movement of an imaginary line known as the inter-tropical discontinuity (ITD), which is in turn dictated by two dominated trade wins; are the tropical continental and the tropical maritime. While according to Thornwaites moisture index the climate of Kaduna falls under the dry sub-humid type (Ayoade, 1988).

### 3.2.5 Soils and Vegetation

The soils in the study area have been classified according to Hoopes classification scheme for Africa as tropical ferruginous soil. They are zonal soils developed under climatic regimes with appreciable but seasonal rainfall of 500-1200mm and cover nearly half of Northern Nigeria (Oguntoyinbo, Areola and Filani, 1983). The soil material consists of several feet of deposited silt sand overlaying sedimentary decomposed rock. The soil is poorly drained because of the high percentage of fine textured materials in the upper layers, which results to water logging especially during the rainy season and tends to dry out and cracks during dry season. Alluvial soil is formed along river sides (fadama). It is made up of several feet of grey white loamy coarse sand with layers of grey heavy molten rock occurring at varying depths within the profile. The alluvial soils are usually under intense cultivation of sugarcane and vegetables year-in year-out and as a result farmers resort to using fertilizers to improve soil fertility.

The natural vegetation of the study area is that of the Northern Guinea Savannah with grass dominating and scattered trees hardly higher than 15ft with broad leaves. Meanwhile, the seasonal character of rainfall in the study area has influenced the vegetation which turns evergreen during the wet season and pale brown in the dry season respectively. Thus, the dominant tree species are *Isoberrina Doka*, *Dodonea spp*, and grass communities consist of *Hyperhenia* and *Andropogon* species. In the city, proper vegetation is characterized by Silk cotton, Baobab and other protected trees. However, man has greatly affected the vegetation formation in the area, through his activities like; bush burning, cultivation of crops, grazing, lumbering, urbanization and industrial activities among others. The vegetation formation varies and is associated with distinct ecological site with particular regard to the nature of the soil (Oguntoyinbo, Areola and Filani, 1983).

### **3.2.6 People and Culture**

Kaduna is a trade centre and a major transportation hub for the surrounding agricultural areas with its rail and road junction. The population of Kaduna is at 760,084 as of the 2006 Nigerian census. The symbol of Kaduna is the crocodile, called Kada in the native Hausa language. Available evidence shows that, the town is inhabited by over 200 different ethnic groups, with Hausa and English as the most general languages used as means of communication. Kaduna is an industrial centre of Northern Nigeria, which has attracted population from most states in the north and Nigeria at large (Kaduna State Government, 2012). This movement of population could be attributed to the increased incident cases of STDs in Kaduna Metropolis.

### **3.2.7 Economy**

The activities in Kaduna Metropolis reflect the commercial services, administrative, industrial, transport and professional needs of the state and northern Nigeria. The 1956 capital territory law created the limits of the present day city of Kaduna and set in motion, the rapid and dynamic physical, economic and social transformation of the town. This resulted to the establishment of modern infrastructural facilities such as electric power supply, pipe borne water, good roads, banks, telephone services and international airport.

These modern infrastructures were the backbone of the establishment of industries like; textile mills, breweries, bottling companies, flour mills, motor assembly plants, to mention a few. These have attracted many, especially the youths, to seek for employment and share in the economic development of the town. These industrial growth and high rate of urbanization has attracted both national and international business men, and has made Kaduna one of the strongest commercial center in northern Nigeria and the country at large (Ali, 2004).

The city is the home of local, state and federal government administrative offices. With the state ministries having their head offices concentrated in the metropolis, most of the inhabitants of the city are civil servants. Agriculture is being practiced at the country side and river bank. Most middle class men involve in rearing of livestock and poultry activities to improve their economic standard. The attraction of population to Kaduna Metropolis could result in increased incident rates of sexually transmitted disease and its spread.

### **3.2.8 Health Services**

Kaduna State, like the rest of Nigeria, has a broad health care service, comprising a wide range of service providers, public, private for profit and faith-based organizations. The health care providers are also very heterogeneous, varying from traditional birth attendants, medicine hawkers to specialists in teaching hospitals. Excluding the patent medicine vendor (PMVs), 40.2% of the health facilities in the State belong to the private sector. The distribution of health facilities in the State by type and ownership is shown in Table 3.1 whereby 96.5% of the 1682 health facilities in the State are primary health care, 3.2% secondary and 0.3% tertiary health care facilities (Kaduna State Ministry of Health, 2015).

**Table 3.1: Health Facilities Available in Kaduna State**

Type of Facility	Ownership					Availability
	Federal	State	LGA	Private	Total	
Tertiary	5	1	0	0	6	1:1,218,091
Secondary	2	34	0	20	56	1:112,861
Primary	2	0	965	656 plus 2500 PMVs	1623 (excluding PMV)	1:4362

Source; Kaduna State Ministry of Health, (2015)

The State has five tertiary health facilities belonging to the federal government, four of which provide specialized care, while the Ahmadu Bello University serves as the apex reference tertiary health care facility. In addition there are two hospitals belonging to the armed forces. All the federal government health facilities are based in Kaduna/Zaria. The general hospitals belonging to the state have been categorized as either rural hospitals, general hospitals or specialist hospitals, with range of services and skills available for service delivery improving along as one moves from the rural hospitals to the specialists hospitals. The primary health care facilities are divided into health clinics and Primary Health Care Centers (PHC), with the PHC centers expected to provide the full complement of PHC services. These are all owned by the LGAs. The state is comparatively well endowed with private health facilities, majority providing primary care (Kaduna State Ministry of Health, 2015).

The health care delivery systems in Kaduna Metropolis is part of the general health care system within the State handling both sexually transmitted diseases and non-sexually transmitted disease cases. Kaduna Metropolis has a total of four hundred and two (402) health and medical facilities. Out of these, two hundred and fifty eight (258) are private owned, while one hundred and forty-four (144) are owned by the Government (Federal Ministry of Health, 2011).

### **3.3 METHODOLOGY**

#### **3.3.1. Reconnaissance Survey**

A reconnaissance survey was carried out to get the researcher acquainted with the study area. The Kaduna State ministry of health was visited to help the researcher gain a good insight on availability of data cases of Sexually Transmitted Diseases for the study area.

#### **3.3.2 Types and Sources of Data**

##### **3.3.2.1 Types of Data Utilized**

In order to achieve the set objectives of this study, information was collected from residents in the sampled area. The data utilized in this study includes information on the following;

- i. Socio-demographic characteristics of the respondents such as sex, age, marital status, household size, level of education and occupation.
- ii. Information on STD related knowledge, risk behaviours of the respondents and relevant information about the available health facilities in the study area was required.
- iii. Population data of the study area. This was sourced from the National Population Commission.

##### **3.3.2.2 Sources of Data**

The primary sources of data to be used in this research was obtained from individuals/respondents who provided information through the questionnaire and Focus Group Discussions (FGDs). All these were obtained directly from the respondents.

Secondary data was obtained from Ministries and Agencies such as National Population Commission (NPC) for population and household census.

### 3.3.3 Sample Size and Sampling Technique

In order to select respondents for questionnaire administration survey, a systematic sampling method was employed by drawing a list from all the wards within Kaduna Metropolis and arranging them in alphabetical order. Every 3<sup>rd</sup> numbered ward from each LGAs that make up the metropolis was selected to make the sample frame (See Table 3.2 and 3.3).

The selected wards was assigned a number of questionnaires proportionate to the projected population through 2015 of the Locality list and figures of Kaduna North, Kaduna South, Parts of Chikun and Igabi LGA as presented in Table 3.4. The projected ward population is derived from the formula:

$$P_{t+n} = P_t e^{rn}$$

Where

$P_{t+n}$  = Future population (2015)

$P_t$  = Base year (1991)

$r$  = Growth rate (3%)

$n$  = Interval between future population and base year population (1991-2015=24 years)

**Table 3.2: Wards in Kaduna Metropolis**

KADUNA NORTH	KADUNA SOUTH	PARTS OF CHIKUN	PARTS OF IGABI
Abakpa	Badikko	Gonin Gora	Afaka
Badarawa	Barnawa	Narayi	Mando
Kabala Costain	Kabala West	Sabon Tasha	Nariya
Hayin Banki	Kakuri Makera	Ungwan Boro	Rigachikun
Kabala Doki	Kurmin Mashi	Ungwan Romi	Rigasa
Kawo	Sabon Gari	Ungwan Sunday	
Kotoko-Barracks	Tudun Nufawa	Ungwan Yelwa	
Malali	Tudun Wada		
Ungwan Dosa	Ungwan Television		
Ungwan Kanawa	Ungwan Sanusi		
Ungwan Garba			
Ungwan Gwari			
Ungwan Rimi			
Ungwan Sarki			
Ungwan Shanu			

**Source: Modified from (NPC, 1991).**

**Table 3.3: Sampled Wards in Kaduna Metropolis by LGA**

KADUNA NORTH	KADUNA SOUTH	PARTS OF CHIKUN	PARTS OF IGABI
Abakpa	Badikko	Gonin Gora	Afaka
Hayin Banki	Kakuri Makera	Ungwan Boro	Rigachikun
Kotoko-Barracks	Tudun Nufawa	Ungwan Yelwa	Rigasa
Ungwan Kanawa	Ungwan Sanusi		
Ungwan Rimi			
Ungwan Shanu			

**Source: Modified from (NPC, 1991)**

**Table 3.4: Selected Wards and Proportion of Respondents by LGA**

S/No.	Selected Wards	Locality Population in 1991	Projected Population 2015	Proportion of Respondents to be sampled
1	Abakpa	13539	27815	14
2	Hayin Banki	16538	33976	17
3	Kotoko-Barracks	5657	11622	6
4	Ungwan Kanawa	9732	19994	10
5	Ungwan Rimi	52717	108304	53
6	Ungwan Shanu	18442	37888	19
7	Badikko	16265	33415	16
8	Kakuri Makera	77374	158960	78
9	Tudun Nufawa	39311	80762	39
10	Ungwan Sanusi	23971	49247	24
11	Gonin Gora	3806	7819	4
12	Ungwan Boro	494	1015	1
13	Ungwan Yelwa	25186	51743	25
14	Afaka	14560	29913	15
15	Rigachikun	7312	15022	7
16	Rigasa	72483	148912	72
<b>Total</b>		<b>397387</b>	<b>816407</b>	<b>400</b>

**Source: Adapted and Modified from (NPC, 1991).**

To determine the proportion of questionnaires to be administered in the selected LGAs, Yamene (1967) formula for sample size selection was used.

$$SS = \frac{N}{1+N(e)^2}$$

Where:

SS = Sample Size.

N = Total population under study.

e = Acceptable error size (0.05).

Therefore, using the above formula, 400 respondents were sampled in all. More so, to obtain the proportion of questionnaire to be administered in each of the wards within the metropolis, Yamene (1967) formula was used (See Table 3.3).

$$\frac{n \times 400}{N}$$

Where

n = Total population of the each selected LGA.

N = Total population of the entire population under study.

For heterogeneous environment like Kaduna Metropolis, where population density, sex, age, income level, household size, level of education and probably occupation to a large extent determine the socio-demographics of sexually transmitted diseases and other associated risk behaviours are quite varied, purposive sampling technique is therefore more useful for identifying specific cases for detail enquires (Suleiman, 2009).

Hence, purposive sampling technique was adopted for the purpose of questionnaire administration at the ward level which was used to select the respondents for both male and female of age group (15 and above) within the randomly selected households in the selected wards until the allocated questionnaire is exhausted. The selection of respondents within the defined age group is due to the fact that they have a high tendency of being sexually active and are facing myriad of health problems, particularly, risk of STDs.

The selection of male and female respondents is to ascertain gender differentials in STDs in the study area. This was done to ensure an effective spatial coverage and as well as to ensure a valid response from the respondents so as to avoid prejudice in the questionnaire administration process thereby ensuring adequate representation of the population under study.

Focus Group Discussions (FGDs) was conducted to elicit additional qualitative information from the respondents which involved bringing together men and women between 6-10, to explore their opinions on the issues relating to the topic, i.e. Knowledge and Prevalence of Sexually Transmitted Diseases. A total of eight FGDs were conducted in the study area, two were conducted in each of the LGA that constitutes the Metropolis one for male and another for female within the study area for better response.

### **3.3.4 Method of Data Analysis**

The method adopted for this research work forms the basis for achieving the aim of the study. Information from questionnaires and Focus Group Discussions were used to understand the knowledge and prevalence of sexually transmitted diseases and its associated risk factors within the study area.

To characterize the types of STDs found in the study area was achieved by carefully analysing the information collected from the interviews by means of descriptive statistics to summarize data collected in percentages, bar charts, frequency tables and using Statistical Package for Social Science (SPSS).

Assessing the level of knowledge of STDs among the population in the study area was achieved by deploying descriptive statistics technique to summarize data collected in percentages and bar charts using Statistical Package for Social Science (SPSS).

Examining the prevalence rate of STDs in the study area was achieved by analysing the information collected from the interviews in a frequency distribution table in which the rate of prevalence was categorized according to their location and presented in tables using Statistical Package for Social Science (SPSS), while calculation for prevalence rate is given as

$$\text{Prevalence Rate} = (\text{No. of cases in a given period} / \text{population size}) * 100.$$

Analysing the determinant factors influencing knowledge and prevalence of STDs in the study area was achieved using Multiple Regression Analysis in SPSS to analyse the factors influencing the knowledge and prevalence of STDs so as to examine the relationship between the independent and dependent variables. The multiple regression model was defined as follows:

$$\gamma_i = \alpha_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \dots + \beta_k\chi_k \text{ ----- equation 1}$$

Where;

$\gamma$  is the dependent variable which represents the proportion of population with knowledge of STDs and  $i = 0$  for male and 1 for female.

$\beta_1 + \beta_2 + \beta_3 + \dots + \beta_k$  represent the regression coefficients to be estimated and  $\chi_1 + \chi_2 + \chi_3 + \dots + \chi_k$  represent covariates (independent variables) such as age, gender, religion, education, tribe, occupation, income level and region.

$$\gamma_i = \alpha_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \dots + \beta_k\chi_k \text{ ----- equation 2}$$

Where;

$\gamma$  is the dependent variable which represents the proportion of population who had experienced STDs in the last 12 months preceding the survey and  $i = 0$  for male and 1 for female.

$\beta_1 + \beta_2 + \beta_3 + \dots + \beta_k$  represent the regression coefficients to be estimated and  $\chi_1 + \chi_2 + \chi_3 + \dots + \chi_k$  represent covariates (independent variables) such as marital status, marital union, age at first marriage, income per month, first sexual intercourse, sexual partners, frequency of condom use, knowledge of STDs, use of shared toilet facility, HIV/AIDS screening

Examining the socio-economic factors influencing knowledge and prevalence of STDs in the study area was also achieved using Multiple Regression Analysis in SPSS to test for socio-economic factors influencing knowledge and prevalence of STDs in the study area. The multiple regression model was defined as follows:

$$\gamma_i = \alpha_0 + \beta_1\chi_1 + \beta_2\chi_2 + \beta_3\chi_3 + \dots + \beta_k\chi_k \text{ ----- equation 3}$$

Where;

$\gamma$  is the dependent variable which represents the proportion of population with knowledge of STDs and proportion of population who had experienced STDs in the last 12 months preceding the survey and  $i = 0$  for male and 1 for female.

$\beta_1 + \beta_2 + \beta_3 + \dots + \beta_k$  represent the regression coefficients to be estimated and  $\chi_1 + \chi_2 + \chi_3 + \dots + \chi_k$  represent covariates (independent variables) such as age, gender, religion, marital status, education, tribe, occupation, accommodation type, income level and region.

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

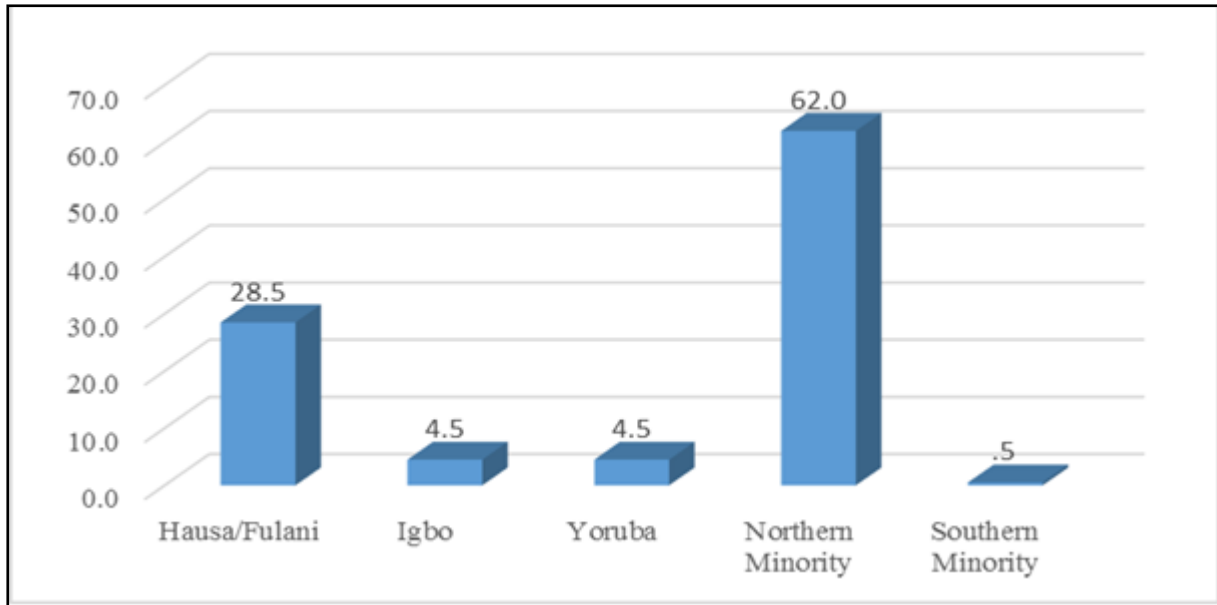
#### **4.1 INTRODUCTION**

This chapter examines the findings of the research based on the knowledge and prevalence of sexually transmitted diseases in Kaduna metropolis, Kaduna state. The chapter discusses the socio-economic and demographic characteristics of respondents; location of respondent, age distribution, educational attainment, marital status, religion, region, income, occupation and marital union, accommodation in Kaduna metropolis, Kaduna state.

#### **4.2. DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS IN KADUNA METROPOLIS**

##### **4.2.1 Ethnicity**

Figure 4.1 shows the distribution of respondents by ethnicity. Majority of the respondents are Northern Minorities which make up about 60.2 %, followed by the Hausa/Fulani with about 28.5 %, Igbo and the Yoruba ethnic groups constitute 4.5 % each, while the Southern Minorities constitute the lowest of all with about 0.5 %.



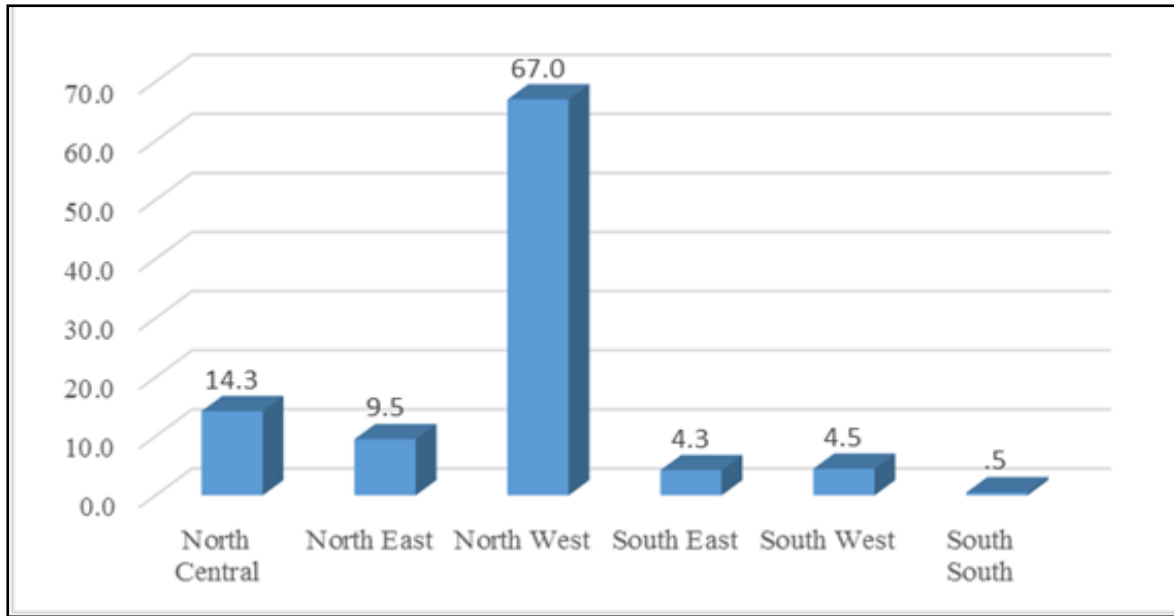
**Figure 4.1 Percentage Distribution of Respondents by Ethnicity**

**Source:** Field Survey, 2015

This shows that the study area is dominated by the Northern Minorities who are the indigenes of the area. The high number of Northern minorities could be as a result of inaccessibility of most Hausa/Fulani population due to religious and ethnic differences. This shows that the population of Kaduna Metropolis is heterogeneous.

#### **4.2.2 Region of Origin**

Figure 4.2 shows the distribution of respondents based on their region of origin. Majority of the respondents are from the North-West region of the country with 67 %, followed by North-Central and North-East with 14.3 % and 9.5 % respectively. Those from South-East, South-West and South-South region constitute the lowest with about 4.3 %, 4.5 % and 0.5 % accordingly.



**Figure 4.2: Percentage Distribution of Respondents by Region of Origin**

**Source:** Field Survey, 2015

The study area is dominated by the population from North-West which include states such as; Kaduna, Kebbi, Zamfara, Sokoto, Kano, Jigawa and Katsina. The population of those from North-Central region that make up the metropolis include those from states such as; Kogi, Niger, Benue, Kwara, Plateau, Nasarawa and those from the FCT. Since the study covers Kaduna Metropolis, the dominant population are the Hausa/Fulani and Northern Minorities as shown in Figure 4.1. These population constitutes the bulk of the respondents of North West origin.

### 4.2.3 Age

Table 4.2 shows the distribution of respondents by age. Majority of the respondents are in the age group 35-39 years (22 %), followed by those in the age group 20-24 years and those above 50 years with 17.3 % and 17.0 % respectively. Age group 40-44 years, 25-29 years, 30-34

years and 15-19 years have 12.3 %, 11.5 %, 8.3 % and 7.8 % in that order. Whereas, the age group 45-49 years has 4.0 %.

**Table 4.2 Distribution of Respondents by Age**

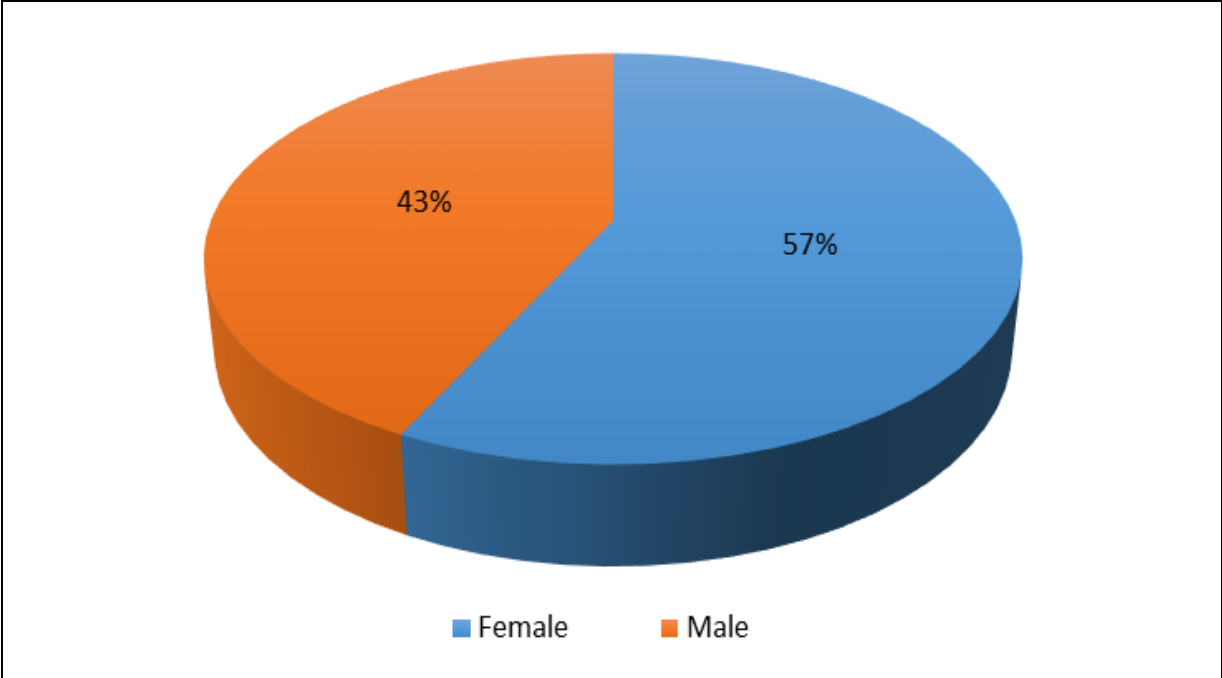
<b>Age range</b>	<b>Frequency</b>	<b>Percentage</b>
15-19	31	7.8
20-24	69	17.3
25-29	46	11.5
30-34	33	8.3
35-39	88	22.0
40-44	49	12.3
45-49	16	4.0
50 and above	68	17.0
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Source:** Field Survey, 2015

The age group of the respondents used in this study is 15years and above, this is because the age bracket is considered in demographic studies to be the sexually active age group.

#### **4.2.4 Sex**

Figure 4.3 shows the distribution of respondents by sex. A little over half of the sampled respondents 57 % are females which implies a dominance of females as against the 43 % that are males indicating a gender difference of 14 %. This shows that more women were interviewed than men which is as a result of the random sampling technique used in questionnaire administration.



**Figure 4.3 Percentage Distribution of Respondents by Sex**

Source: Field Survey, 2015

**4.2.5 Religion**

Table 4.3 shows the distribution of respondents by religion. The distribution by religion shows that majority of the respondents 49.5 % and 42.0 % are Christians and Muslims respectively while Traditional worshippers make up 8.5 %.

**Table 4.3 Distribution of Respondents by Religion**

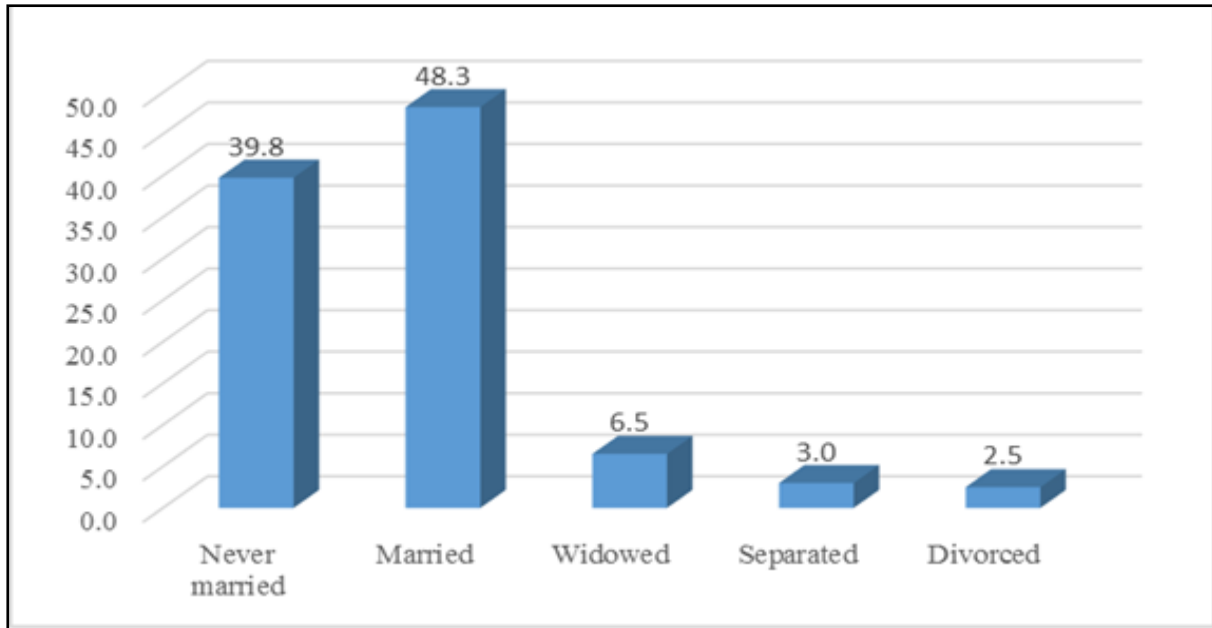
<b>Religion Respondents</b>	<b>Frequency</b>	<b>Percentage</b>
Christianity	198	49.5
Islam	168	42.0
Traditional	34	8.5
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Source:** Field Survey, 2015

Religion plays a vital role in sex education; three different religious groups were identified in the study area as follows Christians, Muslims and Traditionalist. STD awareness are taken against the backdrop of religious belief and practices. Religion is widely accepted as an important predictor of demographic behaviour in every society, it influences social and cultural beliefs of the people. It serves as a significant medium through which traditional cultural values are learnt and some biases acquired (Godswill, 2010).

#### **4.2.6 Marital Status**

Figure 4.4 shows the distribution of respondents by marital status. It shows that 48.3 % of the respondents are married, while 39.8 % are single. 6.5 %, 3 % and 2.5 % are widowed, separated and divorced in that order.



**Figure 4.4: Percentage Distribution of Respondents by Marital Status**

**Source:** Field Survey, 2015

It is obvious from the findings that majority of the respondents are married. The findings also agree with the response from most of the respondents interviewed during Focus Group Discussion, as stated by a male discussant:

*“Our religion encourage women and young men to get married early in life, so as to discourage unhealthy sexual behaviour and other associated risk behaviours that will influence the prevalence of sexually transmitted diseases” (Male Discussant, 10<sup>th</sup> August 2015)*

#### **4.2.7 Type of Marital Union**

Table 4.4 shows the distribution of respondents by their marital union. The distribution by marital union shows that majority of the respondents 41.3 % are either single or unmarried, while 35.5 % and 23.3 % represents monogamous and polygamous unions respectively.

**Table 4.4: Distribution of Respondents by Type of Marital Union**

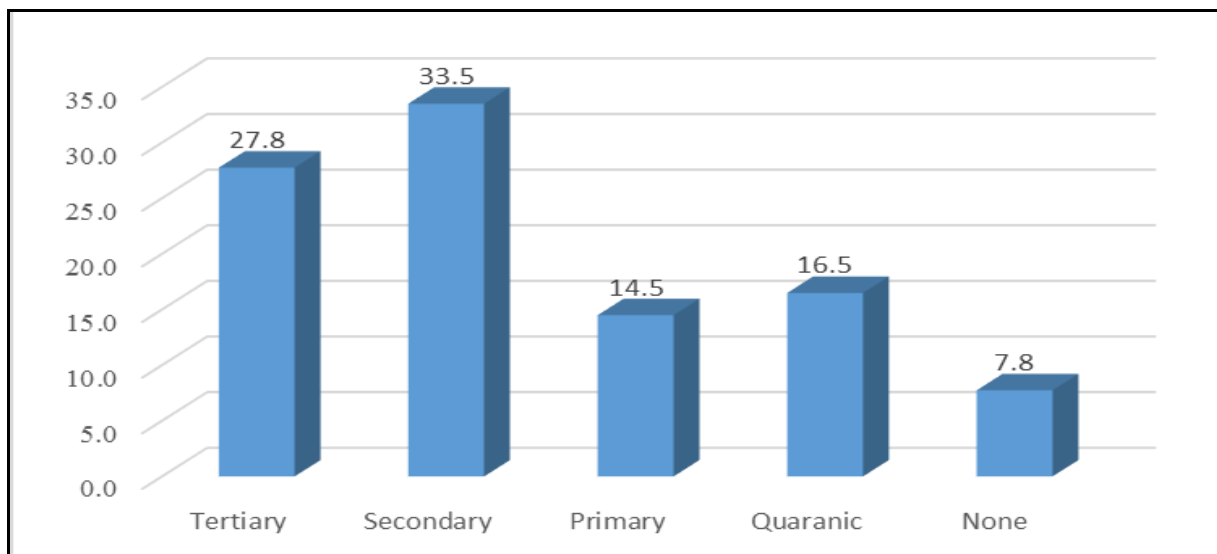
<b>Marital Union</b>	<b>Frequency</b>	<b>Percentage</b>
Monogamy	142	35.5
Polygamy	93	23.3
Others	165	41.3
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Source:** Field Survey, 2015

The dominance of monogamous union is not as expected, as it is generally believed that polygamous union is the dominant type of union in the northern part of the country where Islam permits the marriage of more than one wife. However, this may be attributed to the dominance of Christians among the sampled respondents.

#### **4.2.8 Educational Attainment**

Figure 4.5 shows the distribution of respondents according to educational attainment. It reveals that most of the sampled respondents (33.5 %) have attained secondary school education. This is closely followed by those that have attained tertiary education with 27.8 %, 7.8 % have no formal education, while 16.5 % and 14.5 % have quaranic and primary education respectively.



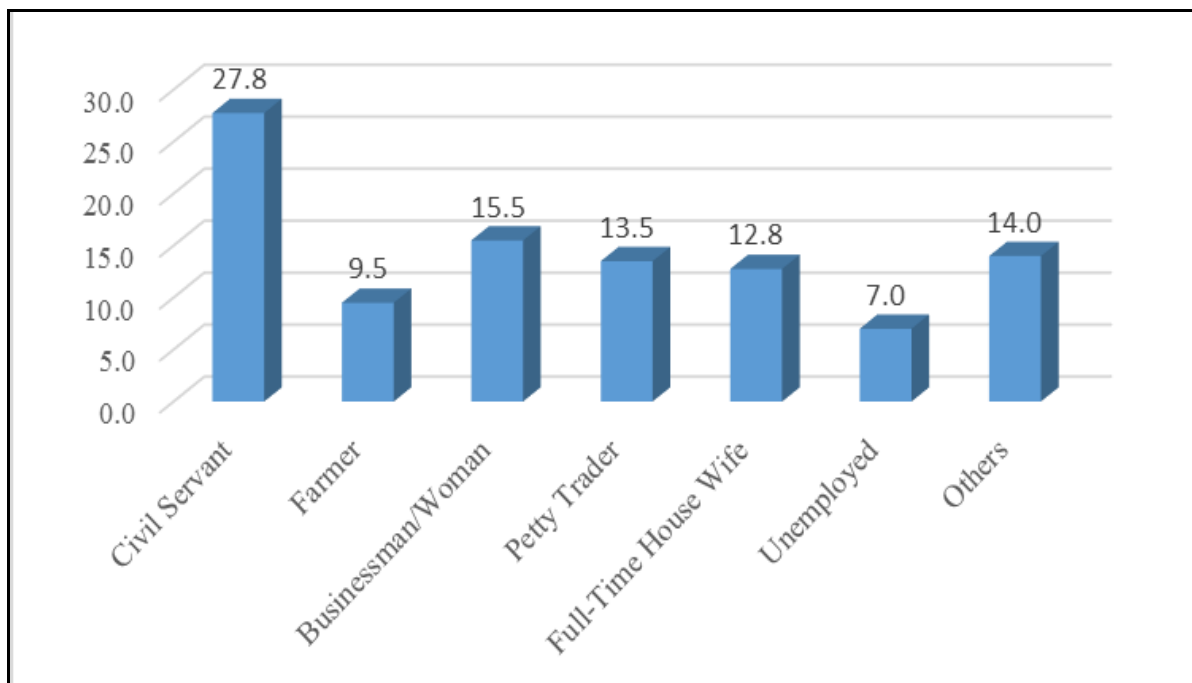
**Figure 4.5: Percentage Distribution of Respondents by Educational Attainment**

Source: Field Survey, 2015

A significantly high proportion of respondents have secondary and tertiary education. It is expected that educated persons will have a better and improved knowledge on sexually transmitted diseases. Education is critical to the future of the individual beneficiary and the society (country) concerned. According to the World Bank (1988), without education, development will not occur.

#### **4.2.9 Occupation**

Table 4.6 shows the distribution of respondents according to their occupation. Most of the respondents are civil servants with 27.8 %, some are engaged in business and petty trading with 15.5 % and 13.5 % respectively. About 12.8 % and 7 % are full time house wives and the unemployed, while respondents of farming occupation make up 9.5 %.



**Figure 4.6: Percentage Distribution of Respondents by Occupation**  
**Source:** Field Survey, 2015

One of the most widely used indices of socio-economic status in demographic analysis is occupational level, as it is expected to play significant roles in the knowledge and awareness of sexually transmitted diseases. In this research, attempts have been made to determine how occupation influences the incidence of STD. Occupation is a regular activity performed for payment that occupies one's time. It can also be referred to as the activity which one regularly devotes oneself, especially one's regular work, or means of getting a living (Wickleby, 1992).

#### **4.2.10 Income Level**

Income like every other socio-demographic variable plays a vital role in the incidence of sexually transmitted diseases (Ogwu, 2003). Table 4.5 reveals that majority of the respondents 43.3 % receive less than N10,000 monthly as income, this indicates that majority of the respondents are relatively low income earners. This is less than the Federal Government minimum wage of N18,000 paid to Nigerian workers. Those who earn beyond N51,000 monthly

constitute 29.5 % and are mainly the high income earners such as major businessmen/women and civil servants. A significant number of respondents who earn N41,000-N50,000 and N21,000-N30,000 are 8.5 % and 8.3 % respectively. While those who earn N11,000-N20,000 and N31,000-N40,000 are about 5.3 % each.

**Table 4.5: Distribution of Respondents by Income Levels**

<b>Income per Month in (Naira)</b>	<b>Frequency</b>	<b>Percentage</b>
< 10000	173	43.3
11000-20000	21	5.3
21000-30000	33	8.3
31000-40000	21	5.3
41000-50000	34	8.5
51000+	118	29.5
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Source:** Field Survey, 2015

Income is one of the most important determinants of the standard of living, economic and social welfare. The level of income has an effect on health and wellbeing, without money the mothers cannot provide adequate, rich nutritional food for the child. According to Ogwu (2003), the work status and personal income significantly affects sexual behaviour, their attitude toward sex, degree of their social interaction, and their exposure to erotic materials.

#### 4.2.11 Types of Accommodation

As shown in Table 4.6, 34 % live in one/two bedroom apartment, 22 % live in two/three bedroom flat, and 21.5 % live in compound houses. Those in duplexes constitute about 3.8 % and 0.5 % are squatters either staying with friends or relatives. While 18.3 % constitute others which could represent hostel accommodations and camps.

**Table 4.6: Distribution of Respondents by Types of Accommodation**

Type of Accommodation	Frequency	Percentage
One/Two apartment	136	34.0
Two/Three Bedroom flat	88	22.0
Duplex	15	3.8
Compound House	86	21.5
Squatting with someone	2	0.5
Others	73	18.3
<b>Total</b>	<b>400</b>	<b>100.0</b>

**Source:** Field Survey, 2015

The distribution by type of accommodation is well established in literatures that type of accommodation and their locations is an indicator of the income level and standard of living of an individual. The standard of living plays a very important role in the sex life of an individual and significantly affects sexual behaviour and their attitude toward sex.

## **CHAPTER FIVE**

### **SEXUALLY TRANSMITTED DISEASES**

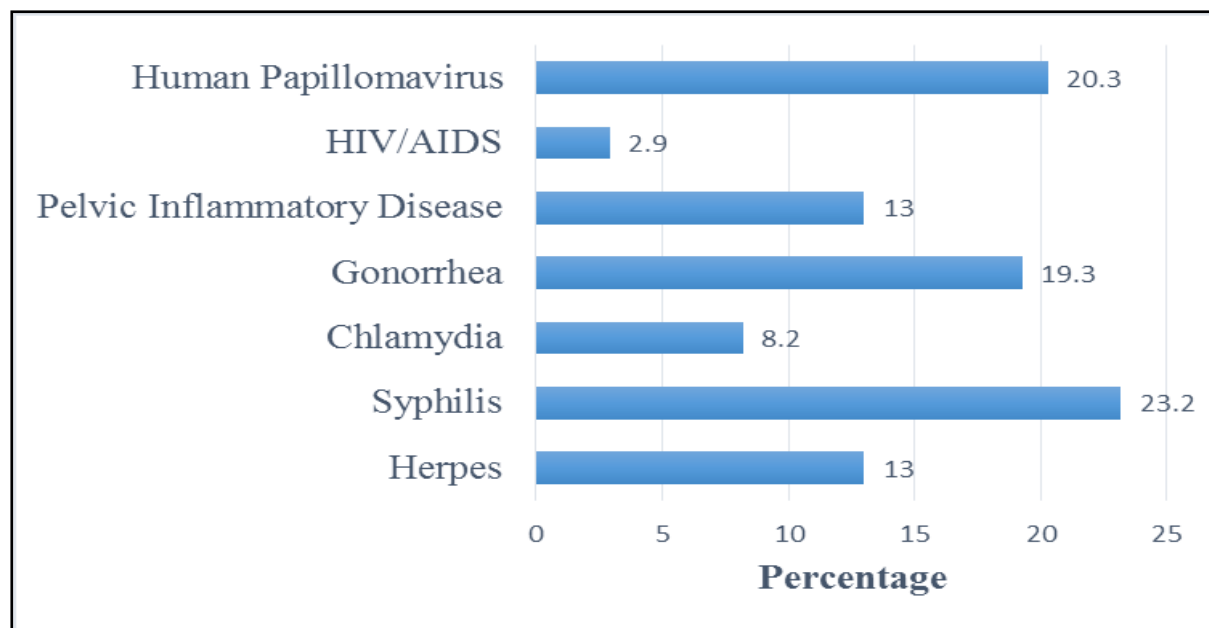
#### **5.1 INTRODUCTION**

This chapter is focused on the types of STDs contracted within the last five years along gender lines, level of knowledge of sexually transmitted diseases and prevalence rate of STDs was analyzed using charts, frequency tables, and crosstabulation. Determinant factors influencing knowledge and prevalence of STDs, socio-economic factors influencing knowledge and prevalence of STDs in Kaduna metropolis were analyzed using multiple regression analysis.

#### **5.2 SEXUALLY TRANSMITTED DISEASES IN KADUNA METROPOLIS**

##### **5.2.1 Type of Sexually Transmitted Diseases**

Figure 5.1 reveals that 23.2 % of the respondents suffered from syphilis between 2010 and 2015, Human Papilloma Virus has about 20.3 % and Gonorrhoea about 19.3 %, these represent the highest sexually transmitted diseases that occurred in the metropolis. Herpes, PID, Chlamydia and HIV/AIDs have lower values of 13 %, 13 %, 8.2 and 2.9 % accordingly.



**Figure 5.1: Percentage Distribution of Respondents by Type of STDs Contacted in Last 5years**

Source: Field Survey, 2015

From the focus group discussion conducted, some group of female discussants noted:

*“The most common type of sexually transmitted diseases in the metropolis is Human Papilloma Virus and Syphilis, also the most common STDs in male population is Gonorrhoea” (Female Discussants in Kaduna South 20<sup>th</sup> August 2015).*

### 5.2.2 Type of Sexually Transmitted Diseases by Gender

Table 5.1 shows a cross tabulation of gender of respondents and type of sexually transmitted diseases. The table reveals that majority of the respondents 46.3 % of female and 43.3 % of male respondents did not suffer from STD in the last 5years. From the female respondents, about 14.4 % suffered from Syphilis, 14 % Human Papilloma Virus, and 11.4 % Pelvic Inflammatory Disease. While the male respondents show that men suffer more from Gonorrhoea 18.1 %, Herpes about 15.2 %, syphilis 12.9 % respectively.

**Table 5.1 Distributions of Respondents by Type of STD and Gender**

Type of STDs Contacted	GENDER					
	Female		Male		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Herpes	2	0.9	26	15.2	28	7.0
Syphilis	33	14.4	22	12.9	55	13.8
Chlamydia	19	8.3	0	0.0	19	4.8
Gonorrhea	10	4.4	31	18.1	41	10.3
Pelvic Inflammatory Disease PID	26	11.4	1	0.6	27	6.8
HIV/AIDS	1	0.4	5	2.9	6	1.5
Human Papilloma Virus HPV	32	14.0	12	7.0	44	11.0
None	106	46.3	74	43.3	180	45.0
Total	229*	100.0	171*	100.0	400	100.0
Pearson Chi-Square = 86.531, Df=7, P Value=0.001				<b>Significant</b>		

Multiple Response Allowed \*

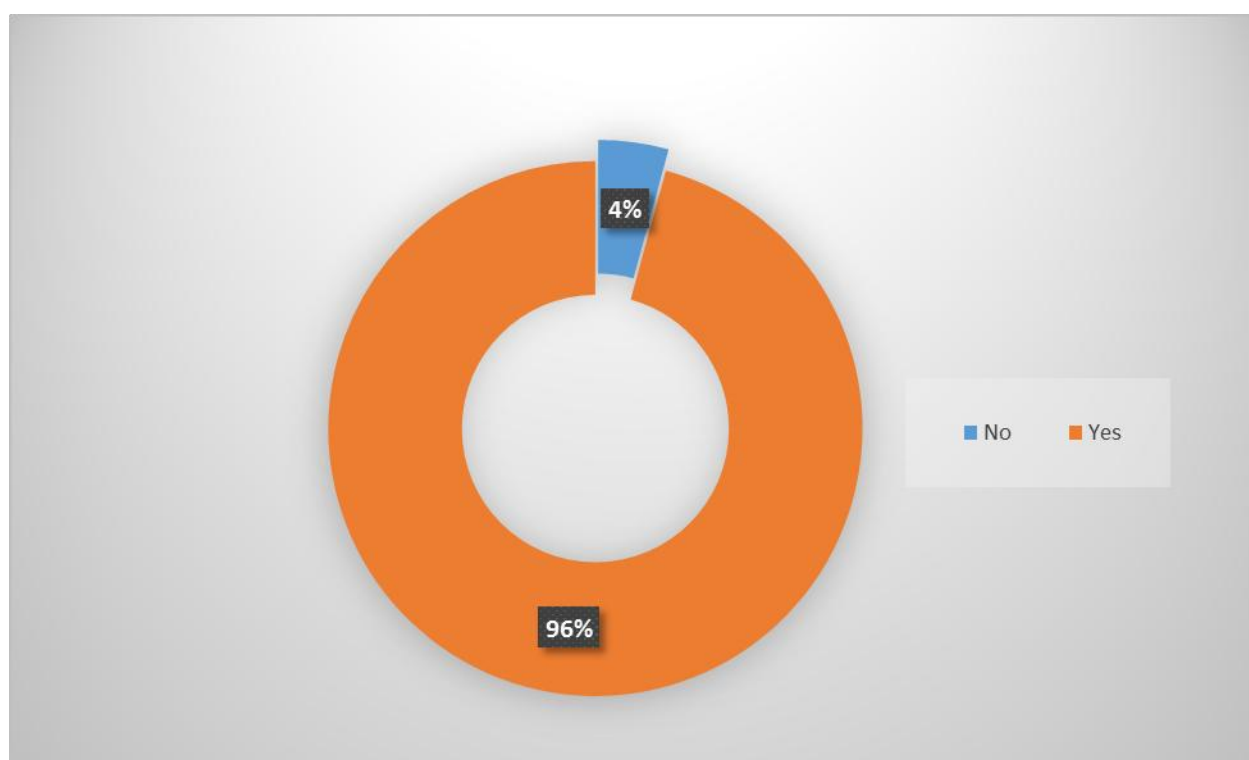
**Source:** Field Survey, 2015

The chi square analysis on the relationship between sex and type of sexually transmitted diseases indicates that there is a statistical significant relationship between sex and type of sexually transmitted diseases with  $\chi^2$  value 86.531, degree of freedom 7 and the  $p < 0.001$ . This implies that the type of STDs contacted differs with gender, with female population suffering more from STDs than male in Kaduna Metropolis. This result agrees with the study of Koray, Lisa and John (1995) which also concluded that female respondents are more than three times as likely to report an STD infection as male respondents.

### 5.3 KNOWLEDGE OF SEXUALLY TRANSMITTED DISEASES IN KADUNA METROPOLIS

#### 5.3.1 Awareness of Sexually Transmitted Diseases

Figure 5.2 shows the distribution of respondents by level of awareness of sexually transmitted diseases in Kaduna metropolis. From the findings, it is obvious that greater proportion (96 %) of respondents are aware of sexually transmitted diseases while a lesser proportion (4 %) are not aware of sexually transmitted diseases.



**Figure 5.2: Percentage Distribution of Respondents by Awareness of STDs**

**Source:** Field Survey, 2015

Majority of the respondents who are aware of sexually transmitted diseases are those who had suffered from the disease or know relatives and friends who suffered from such diseases. The high level of awareness on STDs in the area is mainly due to efforts by NGOs, both private

and public organizations awareness campaign in the area. In a Focus Group Discussion a female discussant stated:

*“Most of us are aware of sexually transmitted diseases because of the sensitization campaign by the Government and NGOs that sensitizes the public on televisions, radio programs and in clinics”* (Female Discussant, Gonin Gora 20<sup>th</sup> August 2015).

### 5.3.2 Sources of Knowledge of Sexually Transmitted Diseases

Table 5.2 shows the sources of information of sexually transmitted diseases. The sources include radio and television (49.9 %), friends and peer groups (27.4 %), hospital (13.1 %) and schools (4.4 %), while 5.2 % represents those who have heard about STDs from all sources.

**Table 5.2 Distribution of Respondents by Source of Knowledge of STD**

Source of Knowledge	Frequency	Percentage
Radio/ Television	191	49.9
Friend/Peer group	105	27.4
School	17	4.4
Hospital	50	13.1
All of the above	20	5.2
Total	383*	100.0

Multiple Response Allowed \*

**Source:** Field Survey, 2015

It can be inferred that majority of respondents in this study rely on T.V/Radio for information about STD's. This shows the importance and reliability of the media – Television and Radio as means of communication. Again, this may be due to the high level of sensitization on radio and Television by the Government and Non-Governmental Organizations (NGOs).

Similar to the findings, as compared with studies done by Nwahizun, (2009), in Akure, Ondo State where majority of the respondent showed that the major means of awareness of STDs among students was through Television/Radio.

### 5.3.3 Knowledge of Transmission of Sexually Transmitted Diseases by Sex

Table 5.3 shows a cross-tabulation between sex of respondents and source of knowledge of sexually transmitted diseases. The table reveals that majority of the respondents 50.9 % of female and 48.9 % of male respondents have knowledge of sexually transmitted diseases from radio and television. Friends and peer groups also make up 25.9 % and 29.2 % for female and male respondents respectively.

**Table 5.3 Distributions of Respondents by Knowledge of STD and Sex**

Source of Knowledge	SEX					
	Female		Male		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Radio/Television	108	50.9	83	48.5	191	49.8
Friend/Peer group	55	25.9	50	29.2	105	27.4
School	9	4.2	8	4.7	17	4.4
Hospital	29	13.7	21	12.3	50	13.1
All of the above	11	5.2	9	5.3	20	5.2
Total	212*	100	171*	100	383	100
Pearson Chi-Square = 0.813, Df=5, P Value= 0.976				<b>Not Significant</b>		

Multiple Response Allowed \*

Source: Field Survey, 2015

The chi square analysis on the relationship between sex and knowledge of sexually transmitted diseases indicates that there is no statistical significant relationship between sex and knowledge of sexually transmitted diseases with  $\chi^2$  value 0.813, degree of freedom 5 and the p value 0.976. This implies that more female respondents have knowledge of STDs than male respondents in Kaduna Metropolis.

## 5.4 PREVALENCE OF SEXUALLY TRANSMITTED DISEASES IN KADUNA METROPOLIS

### 5.4.1 Prevalence Rate of Sexually Transmitted Diseases by Location

Table 5.4 shows the prevalence rate of sexually transmitted diseases which was calculated as “(No. of Cases in a Given Period / Population Size) \* 100”.

The table reveals that the prevalence rate for Chikun is 70 % as the highest, Kaduna South is 59.9 %, Kaduna North is 53.8 %, Igabi has the lowest prevalence rate of 43.6 %.

**Table 5.4 Prevalence Rate of STD in Last 5years**

Location of Respondents	Sexually Transmitted Diseases in last 5years			
	No	Yes	Total	Prevalence Rate (Percentage)
Kaduna North	55	64	119	53.8
Kaduna South	63	94	157	59.9
Chikun	9	21	30	70
Igabi	53	41	94	43.6
<b>Total</b>	<b>180</b>	<b>220</b>	<b>400</b>	

**Source:** Field Survey, 2015

## 5.4.2 Age Group and Prevalence of Sexually Transmitted Diseases

Table 5.5 shows a cross-tabulation between age group of respondents and prevalence of sexually transmitted diseases. The findings shows that 22.7 % of the respondents that suffered STDs in the last 5 years are within the age group 20-24 compared to 3.2 % that are within the age group 15-19.

**Table 5.5 Distributions of Respondents by Age Group and Prevalence of STD**

Age Group	Prevalence of STDs in last 5years				Total	
	No		Yes		Frequency	Percentage
	Frequency	Percentage	Frequency	Percentage		
15-19	24	13.3	7	3.2	31	7.8
20-24	19	10.6	50	22.7	69	17.3
25-29	28	15.6	18	8.2	46	11.5
30-34	13	7.2	20	9.1	33	8.3
35-39	40	22.2	48	21.8	88	22.0
40-44	21	11.7	28	12.7	49	12.3
45-49	5	2.8	11	5.0	16	4.0
50 and above	30	16.7	38	17.3	68	17.0
Total	180	100.0	220	100.0	400	100.0

**Pearson Chi-Square = 28.108, Df=7, P Value < 0.001 Significant**

**Source:** Field Survey, 2015

The chi square test yield a calculated value of 28.108 with 4 degrees of freedom and having a level of significance of  $P < 0.001$ . This shows that there is statistical significant relationship between age group and prevalence of sexually transmitted diseases in Kaduna metropolis. This implies that prevalence of STDs differs across certain age groups.

### 5.4.3 Sex and Prevalence of Sexually Transmitted Diseases

Table 5.6 shows the distribution of sexually transmitted diseases prevalence by respondent's gender. The findings shows that 55.9 % of the respondents with STD in the last 5years are female compared to 44.1 % that are male.

**Table 5.6 Distributions of Respondents by Sex and Prevalence of STD**

Sex	Prevalence of STDs in last 5years				Total	
	No		Yes		Frequency	Percentage
	Frequency	Percentage	Frequency	Percentage		
Female	106	58.9	123	55.9	229	57.3
Male	74	41.1	97	44.1	171	42.8
<b>Total</b>	180	100.0	220	100.0	400	100.0
<b>Pearson Chi-Square = 0.359, Df=1, P Value = 0.549</b>					<b>Not Significant</b>	

**Source:** Field Survey, 2015

The chi square test yield a calculated value of 0.359 with 1 degree of freedom and having a level of significance of  $P = 0.549$ . This shows that there is no statistical significant relationship between sex and prevalence of sexually transmitted diseases in Kaduna metropolis. This implies that the prevalence of STDs differs with gender, with more women infected.

## 5.5 KNOWLEDGE AND PREVALENCE OF SEXUALLY TRANSMITTED DISEASES IN KADUNA METROPOLIS

### 5.5.1 Determination of Factors Influencing Knowledge of Sexually Transmitted Diseases

The result of multiple regression analysis as shown in Table 5.7 indicated that the coefficient of determination ( $R^2$ ) was 0.540 which signified that about 54% of the total variation observed in the dependent variable was explained by the explanatory variables included in the

model. The fitness of the model was further confirmed by the low value of the standard error of the estimate (Standard Error = 0.456). Also, the overall significance of the model was depicted by the F-statistics which was significant at 5% level of significance. The significance of F-ratio shows that the regression result was statistically reliable.

**Table 5.7 Multiple Regression Analysis on Determinants of Factors Influencing Knowledge of STDs**

<b>Variables (X)</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Test</b>
(Constant)		0.147	2.723
Age	0.020***	0.013	0.320
Gender	0.083	0.057	1.357
Religion	-0.026***	0.041	-0.450
Education	0.005***	0.026	0.065
Tribe (Ethnicity)	-0.101	0.021	-1.649
Occupation	0.217***	0.022	2.134
Income (per month in Naira)	0.302***	0.023	2.769
Region of Origin	0.105	0.025	2.125
<b>F. Ratio</b>	<b>2.798 ***</b>		
<b>R Square (R<sup>2</sup>)</b>	<b>0.540</b>		
<b>Standard Error</b>	<b>0.456</b>		

\*\*\* P<0.05

Source: Field Survey, 2015

Further analysis of the results shows that factors such as age, religion, education level, occupation, and income were significant at 5% level and are important determinant factors influencing knowledge of STDs in Kaduna metropolis. The coefficient for Gender, ethnicity and Region of origin are insignificant.

Age was observed to be positive and significant, which implies that age as a factor has a positive relationship with knowledge of STDs in Kaduna Metropolis. The older an individual

gets, the greater the knowledge and awareness of STDs. In a Focus Group Discussion a male discussant stated:

*“Knowledge of STDs comes with an increase in age, the older one gets, the more exposed one is to sensitization campaign programmes by the Government and NGOs”* (Male Discussant, 10th August 2015).

Religion was observed to have a negative significant relationship with knowledge of STDs in Kaduna Metropolis, indicating that the religion of respondents play little role in awareness and knowledge of STDs. This supports the assertion by majority of discussants during the focus group discussion that religious leaders often shy away from open discussion of sex and sexually transmitted diseases.

Education was observed to have positive significant relationship with the knowledge of STDs in Kaduna Metropolis, indicating that the respondents’ knowledge of STDs is positively affected by their level of education. This implies that the higher the level of education of an individual the greater the knowledge and awareness of STDs. This is in agreement with the study of Bakhoun, Bachmann, El-Kharrat and Talaat (2014) where respondents with higher educational qualifications had significantly better knowledge about sexually transmitted diseases.

The factor of occupation was observed to have positive significant relationship with knowledge of STDs in Kaduna Metropolis, indicating that the respondents’ knowledge of STDs is positively affected by their occupation, this implies that the type of occupation one is engaged in is related to one’s exposure and awareness to the sexually transmitted diseases. This is similar to the findings of Norbu, Mukhia and Tshokey (2013) where their analysis showed an association between level of education and level of knowledge on sexually transmitted diseases.

Income as a factor was found to have positive significant relationship. This indicates that one’s income level positively influence the knowledge of STDs. Income is an important

determinant of exposure and awareness, an increase in the income of an individual the more likely the knowledge of STDs. In a Focus Group Discussion a male discussant stated:

*“Poverty has a huge role to play in terms of Knowledge and awareness of STDs. The more money you have the more exposure you get in certain areas of one’s life such as ones health”* (Male Discussant, 10th August 2015).

### **5.5.2 Determination of factors Influencing Prevalence of Sexually Transmitted Diseases**

Result of multiple regression analysis as shown in Table 5.8 indicated that the coefficient of determination ( $R^2$ ) was 0.407 which signified that about 41% of the total variation observed in the dependent variable was explained by the explanatory variables included in the model. The fitness of the model was further confirmed by the low value of the standard error of the estimate (Standard Error = 0.392). Also, the overall significance of the model was depicted by the F-statistics which was significant at 5% level of significance. The significance of F-ratio shows that the regression result was statistically reliable.

The result shows factors such as number of sexual partners, frequency of condom use, knowledge of STDs, use of shared toilet facilities, and HIV/AIDs screening were significant at 5% level and are important determinant factors influencing prevalence of STDs in Kaduna metropolis.

The number of sexual partners was found to have a positive significant relationship with prevalence of STDs. This implies that the higher the number of sexual partners the greater the risk of STDs in Kaduna Metropolis. This finding is expected, as previous reports from the literature consistently attributed sexually transmitted diseases to multiple sexual partners (Adebowale *et al.*, 2013).

**Table 5.8 Multiple Regression analysis on Determinant of Factors Influencing Prevalence of STDs**

<b>Variables (X)</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Test</b>
(Constant)		.106	10.077
Marital Status	-0.021	0.034	-0.413
Marital Union	-0.109	0.051	-1.948
Age at First Marriage	-0.090	0.020	-1.392
Income per month	-0.027	0.014	-0.427
First sexual intercourse	-0.013	0.040	-0.186
Number of Sexual Partners	0.021***	0.027	0.317
Condom use	-0.120***	0.057	-1.999
Knowledge of STDs	-0.544***	0.057	-9.914
Use of share toilet facility	0.062***	0.054	1.158
HIV/AIDS screening	-0.168***	0.057	-3.129
<b>F. Ratio</b>	<b>15.778***</b>		
<b>R Square (R<sup>2</sup>)</b>	<b>0.407</b>		
<b>Standard Error</b>	<b>0.392</b>		

\*\*\* P<0.05

Source: Field Survey, 2015

The rate of condom use showed negative significant relationship with prevalence of STDs in Kaduna Metropolis, indicating that the prevalence of STDs is negatively affected by frequency of condom use. This implies that the lower the use of condoms the higher the likelihood of acquiring STDs. The result is consistent with the findings of Olivi, Santana and Mathias (2008), where perception of risk of acquiring STDs was associated with non-use of condoms in their last sexual relation. Also in agreement with the study of Fagbamigbe *et al.*, (2011) that STD prevalence is lower in those currently using condoms than those who are not.

The knowledge of sexually transmitted diseases was observed have a negative significant relationship with prevalence of STDs in Kaduna Metropolis, indicating that the risk of contracting STDs is negatively affected by knowledge of STDs, which implies that a decrease in knowledge of STDs increases the risk of contacting STDs. This is consistent with findings of Anwar *et al.*, (2010) that knowledge on STDs influences sexual behaviour and thus knowledge is an important prevention mechanism.

Sharing toilet facilities was found to have a positive significant relationship with the prevalence of STDs in Kaduna Metropolis. This indicates that the increase in the use of shared toilet facilities the more likely the risk of contacting STDs in the study area. The result is consistent with the findings of Adebowale *et al.*, (2013) that STDs were found to be more common among those who shared a toilet facility.

HIV/AIDs screening as a factor was observed to have a negatively significant relationship with the prevalence of STDs in Kaduna Metropolis, indicating that the prevalence of STDs is negatively affected by level of HIV/AIDs screening. This implies that the lower the level of HIV/AIDs screening the higher the risk of acquiring STDs. This is supported by Zaba and Gregson (1998) who reported that youths who had ever undergone an HIV/AIDs test constituted a higher proportion of those who had STDs. In a Focus Group Discussion a male discussant stated:

*“Knowing ones HIV status or getting tested for HIV/AIDs makes one to lower the rate of risky activites that could get one to contact the diseases”*  
(Male Discussant, 10th August 2015).

### 5.5.3 Socio-economic Factors Influencing Knowledge of Sexually Transmitted Diseases

The result of multiple regression analysis as shown in Table 5.9 indicated that the coefficient of determination ( $R^2$ ) was 0.630 which signified that about 63% of the total variation observed in the dependent variable was explained by the explanatory variables included in the model. The fitness of the model was further confirmed by the low value of the standard error of the estimate (Standard Error = 0.455). Also, the overall significance of the model was depicted by the F-statistics which was significant at 5% level of significance. The significance of F-ratio shows that the regression result was statistically reliable.

**Table 5.9 Multiple Regression Analysis on Socioeconomic Factors Influencing Difference in Knowledge of STDs**

<b>Variables (X)</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Test</b>
(Constant)		0.150	3.050
Age	0.021	0.014	0.317
Gender	0.063	0.058	1.022
Religion	-0.023	0.041	-0.405
Marital Status	-0.095	0.030	-1.694
Education	0.020***	0.027	0.276
Tribe	-0.117	0.021	-1.886
Occupation	0.203***	0.023	1.970
Accommodation type	-0.052	0.014	-0.949
Income level	0.298***	0.023	2.739
Region	0.097***	0.025	1.952
<b>F. Ratio</b>	<b>2.612***</b>		
<b>R Square (<math>R^2</math>)</b>	<b>0.630</b>		
<b>Standard Error</b>	<b>0.455</b>		

\*\*\*  $P < 0.05$

Source: Field Survey, 2015

This shows that the factors of education, occupation, income and region have positive significant relationship with Knowledge of STDs in Kaduna Metropolis. This implies that the higher the socioeconomic factors of education, occupation, income and region the greater the knowledge and awareness of STDs in the study area. This is similar to the study of Hossain *et al.*, (2014), where socio economic factors were seen to play critical role in influencing the knowledge and awareness of STDs in Bangladesh.

#### **5.5.4 Socio-Economic Factors Influencing Prevalence of Sexually Transmitted Diseases**

The multiple regression analysis as shown in Table 5.10 indicated that the coefficient of determination ( $R^2$ ) was 0.70 which signified that about 70% of the total variation observed in the dependent variable was explained by the explanatory variables included in the model. The fitness of the model was further confirmed by the low value of the standard error of the estimate (Standard Error = 0.489). Also, the overall significance of the model was depicted by the F-statistics which was significant at 5% level of significance. The significance of F-ratio shows that the regression result was statistically reliable.

The result shows that the factors of education, occupation, accommodation type, and income level were significant at 5% level and are most important socioeconomic factors influencing the prevalence of sexually transmitted diseases in Kaduna metropolis.

**Table 5.10 Multiple Regression Analysis on Socioeconomic Factors Influencing Prevalence of STDs**

<b>Variables (X)</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Test</b>
(Constant)		0.161	6.692
Age	0.043	0.015	0.660
Gender	0.059	0.062	0.964
Religion	-0.027	0.044	-0.476
Marital Status	0.023	0.032	0.408
Education	-0.158***	0.029	-2.181
Tribe	0.003	0.023	0.046
Occupation	-0.357***	0.024	-3.481
Accommodation type	-0.107***	0.015	-1.975
Income level	-0.454***	0.025	-4.184
Region	-0.039	0.026	-0.778
<b>F. Ratio</b>	<b>2.915***</b>		
<b>R Square (R<sup>2</sup>)</b>	<b>0.700</b>		
<b>Standard Error</b>	<b>0.489</b>		

\*\*\* P<0.05

Source: Field Survey, 2015

The socioeconomic factors of education, occupation, type of accommodation and income level have a negative significant relationship with the prevalence of STDs in Kaduna Metropolis, which implies that the lower the socioeconomic factors such as education, occupation, accommodation type, and income level the greater the prevalence of STDs in the study area. This observation is in contrast with the findings from a previous study which shows that the prevalence of sexually transmitted diseases increases with increasing level of education, occupation and income (Oboyeji and Nwabuisi, 2003).

## **CHAPTER SIX**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **6.1 INTRODUCTION**

Sexually transmitted diseases (STDs) are infections that can be transferred from one person to another during sexual activity. Knowledge and prevalence of sexually transmitted diseases in Kaduna metropolis was conducted using questionnaires administered and Focused Group Discussions in Kaduna North, Kaduna South, Parts of Chikun and Igabi Local Government Areas. The research has attempted to characterize the types of STDs, assess level of knowledge and prevalence rate of STDs. The study also analyzed the socio-economic factors and risk factors influencing knowledge and prevalence of STDs in the study area.

#### **6.2 SUMMARY OF FINDINGS**

The type of sexually transmitted diseases most dominant in the study area are syphilis, human papilloma virus (HPV) and Gonorrhoea. Furthermore about 55% of the respondents suffered from sexually transmitted diseases in the last 5 years. The study also revealed that majority of the female respondents suffered from syphilis and human papilloma virus, while majority of the male respondent suffered more from gonorrhoea. Also result from chi square indicated that there is a significant relationship between sex and type of sexually transmitted diseases.

It was inferred from the study that majority of respondents rely on T.V/Radio for information about STDs, which shows the importance and reliability of the media – Television and Radio as means of communication. Also, the findings indicated that greater proportion about

96 % of respondent are aware of sexually transmitted diseases which was attributed to efforts by NGOs, both private and public organizations in awareness campaigns. The chi square analysis on the relationship between sex and knowledge of sexually transmitted diseases indicate that there is no significant relationship between sex and knowledge of sexually transmitted diseases.

The 5year prevalence rate of sexually transmitted diseases revealed Chikun as the highest with 40 %, Kaduna South is 59.9 %, Kaduna North is 53.8 %, Igabi has the lowest prevalence rate of 43.6 %. The study also showed a significant relationship between age group and prevalence of sexually transmitted diseases in Kaduna metropolis, where respondents within age group 20-24 have the highest prevalence of STDs. Also, there was no significant relationship between gender and prevalence of sexually transmitted diseases in the metropolis.

The factors found to have significant relationship with knowledge of STDs in the study area includes; age, religion, education level, occupation, and income. while number of sexual partners, frequency of condom use, knowledge of STDs, use of shared toilet facilities, and HIV/AIDs screening were found to have significant relationship with prevalence of sexually transmitted diseases in the study area.

The result for socioeconomic factors influencing knowledge of STDs in the study area revealed a significant relationship with education, occupation, income and region as the major factors, while education, occupation, accommodation type, and income level as socioeconomic factors revealed significant relationship with prevalence of STDs in Kaduna metropolis.

### **6.3 CONCLUSION**

This research has examined the knowledge and prevalence of sexually transmitted diseases in Kaduna metropolis, Kaduna State. It was established that syphilis, human papilloma

virus (HPV) and gonorrhoea are the major STDs dominant in the study area and the chi square indicated that there is a significant relationship between sex and type sexually of transmitted diseases with majority of female respondents suffering from syphilis and human papilloma virus, while majority of the male respondents suffered more from gonorrhoea. The chi square analysis revealed no significant relationship between sex and knowledge of sexually transmitted diseases. Majority of respondents rely on T.V/Radio for information about STDs with greater proportion of respondents aware of sexually transmitted diseases which was attributed to efforts by NGOs, both private and public organizations in awareness campaigns. Chikun showed high prevalence rate followed by Kaduna South, Kaduna North and Igabi in that order, where respondents within age group 20-24 have the highest prevalence of STDs.

This study recognized age, religion, education level, occupation, and income as important determinant factors influencing knowledge of STDs. The number of sexual partners, frequency of condom use, knowledge of STDs, use of shared toilet facilities, and HIV/AIDS screening were recognized to be the determinant factors influencing prevalence of sexually transmitted diseases. While education, occupation, income level, religion and accommodation type were found to be the most important socioeconomic factors influencing knowledge and prevalence of STDs in Kaduna metropolis.

#### **6.4 RECOMMENDATIONS**

The importance of socio-economic and behavioral factors influencing knowledge and prevalence of sexually transmitted diseases cannot be overemphasized. Considering the threat posed by sexually transmitted diseases (STD) and its high prevalence in the study area as concluded from the study, it is recommended that:

- i. Government and family members should provide more support to those already infected by STDs like HIV/AIDS. Stigmatization should be discouraged and access to medical facilities should be improved by the government, also community counseling through regular meeting between community leaders and health workers on sexually transmitted diseases should be employed and or promoted by the local government authorities.
- ii. School counselors should organize group guidance programme in the secondary and tertiary institutions, churches and recreational centers with the aim of educating the young and the elderly about STDs. The contents of the programme should be on ways to reduce the risk of STDs. The Federal, State and Local Government should assist the psychologists, guidance and counsellors in providing pamphlets and printed materials on STD and HIV/AIDS education. This should be made available to the target population through the churches, communities, schools and other gatherings.
- iii. Efforts should be stepped up on the ethical and moral values within places of religious worship. The government and private organizations should reawaken moral instruction in schools, inform people and help them make intelligent decisions and take actions that will improve or promote health, it should enlighten the public about the problems of STDs and help them secure support for STDs control and prevention as well as educate people about the risk factors contributing to STDs.

#### **6.4.1 Recommendations for Further Studies**

- i. More research should focus on coping mechanism for those already infected with sexually transmitted disease.
- ii. Studies should be carried out on the prevalence rate of each of the sexually transmitted diseases dominant in the study area.
- iii. Further studies on sexually transmitted diseases should focus more on a larger sample size with a wider scope to provide a robust view at state and national level.

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## APPENDIX I

### QUESTIONNAIRE SCHEDULE

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I am an M.Sc student of the above named department carrying out a research on **the knowledge and prevalence of sexually transmitted diseases in Kaduna Metropolis, Kaduna State**. The research is strictly academic and will be used entirely for that purpose; you are assured of anonymity as your responses will be handled with strict confidence.

Thank You.

#### **INSTRUCTIONS**

- i. Tick the appropriate boxes where applicable.
- ii. Please fill the appropriate spaces as provided in each of the items bellow.
- iii. Leave out any questions where answers are not sure.
- iv. Where spaces provided are too small, please use additional page attached.
- v. Other comments are also welcome on any answer giving.

**LOCATION OF RESPONDENT:.....**

#### **SECTION A: SOCIO-ECONOMIC AND DEMOGRAPHIC DATA**

1. Age (a) 15 – 19 [ ] (b) 20-24 [ ] (c) 25-29 [ ] (d) 30-34 [ ]  
(e) 35-39 [ ] (f) 40-44 [ ] (g) 45-49 [ ] (h) 50 and above [ ]
2. Sex (a) male [ ] (b) female [ ]
3. Marital status? (a) Never married [ ] (b) Married [ ] (c) Widowed [ ]  
(d) Separated [ ] (e) Divorced [ ]
4. Type of marital union  
(a) Monogamy [ ] (b) Polygamy [ ] (c) Others (Specify) \_\_\_\_\_

5. If in Polygamous Union how many wives do you have? (Males Only)  
 (a) 2 Wives [ ] (b) 3 Wives [ ] (c) 4 Wives [ ] (d) Others (Specify) \_\_\_\_\_
6. If in Polygamous Union how many of you are married to your husband? (Females Only)  
 (a) 2 Wives [ ] (b) 3 Wives [ ] (c) 4 Wives [ ] (d) Others (Specify) \_\_\_\_\_
7. Age at first marriage?  
 (a) < 18 years [ ] (b) 18-21 years [ ] (c) 22-25 years [ ]  
 (d) 26-29 years [ ] (e) 30-33 years [ ] (f) 34-37 years [ ] (g) 38 + [ ]
8. What is your religion? (a) Christianity [ ] (b) Islam [ ] (c) Traditional [ ]
9. What is the highest level of school you attended? (a) Tertiary [ ] (b) Secondary [ ]  
 (c) Primary [ ] (d) Quaranic [ ] (e) None [ ] (f) Others (Specify) \_\_\_\_\_
10. What is your occupation? (a) Civil Servant [ ] (b) Farmer [ ] (c) Petty Trader [ ]  
 (d) Businessman/Woman [ ] (e) Full-Time House Wife [ ] (f) Unemployed [ ]  
 (g) Others (Specify) \_\_\_\_\_
11. Type of accommodation  
 (a) One/Two apartment [ ] (b) Two/Three Bedroom flat [ ] (c) Duplex [ ]  
 (d) Compound House [ ] (e) Squatting with someone [ ] (f) Others (Specify) \_\_\_\_\_
12. Ownership of accommodation  
 (a) Self owned [ ] (b) Official [ ] (c) Rented [ ] (d) Inherited [ ]
13. How much is your income level per month in Naira?  
 (a) < ₦ 10000 [ ] (b) ₦ 11000 – ₦20,000 [ ] (c) ₦21,000 – ₦30,000 [ ]  
 (d) ₦31,000 – ₦40,000 [ ] (e) ₦41,000 – ₦ 50,000 (f) ₦51,000 + [ ]
14. What is your tribe?  
 (a) Hausa/Fulani [ ] (b) Igbo [ ] (c) Yoruba [ ] (d) Northern Minority [ ]  
 (e) Southern Minority [ ] (f) Others (Specify) \_\_\_\_\_
15. What region are you from?  
 a. (a) North Central [ ] (b) North East [ ] (c) North West [ ]  
 b. (d) South East [ ] (e) South West [ ] (f) South South [ ]

## **SECTION B: STD KNOWLEDGE, RISK BEHAVIOUR AND HEALTH FACILITIES**

16. Have you ever had sex? (a) Yes [ ] (b) No [ ]
17. How often do you have sex?  
 (a) Any available opportunity [ ] (b) Everyday [ ] (c) Once a week [ ]  
 (d) Once a month [ ] (e) Others (Specify) \_\_\_\_\_
18. Who do you have sex with?  
 (a) One regular partner [ ] (b) More than one partner [ ] (c) Any casual partner [ ]  
 (d) Both regular and casual partners [ ] (e) Others (Specify) \_\_\_\_\_

19. What are your reasons for having sexual intercourse?  
 (a) Out of Curiosity [ ] (b) As an act of maturity [ ] (c) For self-satisfaction [ ]  
 (d) For monetary and material gains [ ] (e) To satisfy Spouse/Girlfriend/Boyfriend  
 (f) To have Babies [ ] (g) Others (Specify) \_\_\_\_\_
20. What type of sexual relationship are you engaged in?  
 (a) Man to woman (Heterosexual) [ ] (b) Man to man (Homosexual) [ ]  
 (c) Woman to woman (Homosexual) [ ] (d) Others (Specify) \_\_\_\_\_
21. Do you know what condom is? (a) Yes [ ] (b) No [ ]
22. Have you ever used condom during sex? (a) Yes [ ] (b) No [ ]
23. Did you use condom during your last sexual intercourse? (a) Yes [ ] (b) No [ ]
24. Have you ever heard about sexually transmitted disease? (a) Yes [ ] (b) No [ ]
25. If yes, where did you hear from? (a) Newspaper/Magazines [ ] (b) Radio [ ]  
 (c) Television [ ] (d) Friend/Peer group [ ] (e) School [ ] (f) Hospital [ ]  
 (g) Poster, fliers, billboards [ ] (h) Others (Specify) \_\_\_\_\_
26. Which of the following carries the risk of STDs? (a) Casual Sex [ ]  
 (b) Sex without Condom [ ] (c) Blood transfusion [ ] (d) Kissing [ ]  
 (e) Sharing cloths and toilet facilities [ ] (f) Sharing of needles/syringes [ ]  
 (g) Nursing an STD patient [ ] (h) Others (Specify) \_\_\_\_\_
27. Which of the following activities do you consider dangerous and likely to enhance the spread of Sexually Transmitted Diseases?  
 (a) Prostitution by male and female [ ] (b) Having multiple sex partners [ ]  
 (c) Homosexuality [ ] (d) Masturbation [ ] (e) Others (Specify) \_\_\_\_\_
28. Have you ever suffered from any sexually transmitted disease? (a) Yes [ ] (b) No [ ]
29. If yes, which type? (a) Herpes [ ] (b) Syphilis [ ] (c) Chlamydia [ ]  
 (d) Gonorrhoea [ ] (e) Pelvic Inflammatory Disease PID [ ] (f) HIV/AIDS [ ]  
 (g) Human Papillomavirus HPV [ ] (h) Others (Specify) \_\_\_\_\_
30. Did you seek medical help? (a) Yes [ ] (b) No [ ]
31. If yes, where did you go for help? (a) Herbal [ ] (b) Pharmacy [ ] (c) Hospital [ ]  
 (d) Private Clinic [ ] (e) Self Medication [ ] (f) Prayer House [ ]  
 (g) Others (Specify) \_\_\_\_\_
32. How many times have you suffered from STDs in the last 5 years?  
 (a) Once [ ] (b) Twice [ ] (c) Thrice [ ] (d) More [ ]
33. Age at first sexual intercourse (years)? (a) <14 [ ] (b) 15 - 19 [ ]  
 (c) 20 – 24 [ ] (d) 25 – 30 [ ] (e) Above 30 [ ]
34. Do you share toilet facility? (a) Yes [ ] (b) No [ ]

35. Have you ever undergone HIV/AIDS screening? (a) Yes [ ] (b) No [ ]
36. If Yes, why?  
(Tick as many as appropriate)  
(a) Marriage preparation [ ] (b) Preparation for surgery [ ]  
(c) Curiosity [ ] (f) Others (Specify) \_\_\_\_\_
37. If No, why?  
(Tick as many as appropriate)  
(a) Fear of stigma and isolation [ ] (b) Lack of knowledge and awareness [ ]  
(c) Lack of access to medical facilities [ ] (d) Lack of time and resources [ ]  
(e) Others (Specify) \_\_\_\_\_
38. What do you think are the demographic effects of STDs scourge?  
(Tick as many as appropriate)  
(a) Rising infant and child mortality [ ] (b) Rising adult mortality [ ]  
(c) Imbalance in male-female ratio of the population [ ]  
(d) Increase number of aged people in the population [ ]  
(e) Others (Specify) \_\_\_\_\_
39. What do you think are the social effects of STDs scourge?  
(Tick as many as appropriate)  
(a) Increased number of children without parent [ ] (b) Breakdown in marital relations [ ]  
(c) Decline in school enrolment [ ] (d) Increased withdrawal from schools [ ]  
(e) Strain on existing medical facilities and personnel [ ] (f) Decreased marriage rate [ ]  
(g) Increased rural out migration [ ] (h) Others (Specify) \_\_\_\_\_
40. What do you think are the economic effects of STDs scourge?  
(Tick as many as appropriate)  
(a) Declining agricultural production [ ] (b) Food scarcity [ ]  
(c) Increased rural and urban poverty [ ] (d) Decline per capita income [ ]  
(e) Scarcity of essential commodities [ ] (f) Others (Specify) \_\_\_\_\_
41. Which do you consider to be the most common STD in your community?  
(a) Herpes [ ] (b) Syphilis [ ] (c) Chlamydia [ ] (d) Gonorrhoea [ ]  
(e) Pelvic Inflammatory Disease PID [ ] (f) HIV/AIDS [ ]  
(g) Human Papillomavirus HPV [ ] (h) Others (Specify) \_\_\_\_\_
42. Do you believe that sex and STDs issues should be publicly discussed?  
(a) Yes [ ] (b) No [ ]
43. What do you think will be the benefits of discussing it publicly?  
(a) Encourage young people to indulge in more sex [ ]  
(b) Create more public awareness as part of the solution to the problem [ ]  
(c) Make infected patients ashamed and reluctant to seek help [ ]  
(d) Go against the traditions of the community [ ]  
(e) Others (Specify) \_\_\_\_\_

44. What do you consider good policy option in combating STD problems?  
(Tick as many as appropriate)
- (a) Participatory education programme [ ] (b) Regular Focused Group Discussion [ ]  
(c) Community mobilization for STD prevention and control [ ]  
(d) Involvement of people living with STDs enlightenment programme [ ]  
(e) Target group observation/peer education [ ] (f) Others (Specify) \_\_\_\_\_
45. What health facility is available in your area?
- (a) Teaching/specialist hospital [ ] (b) General hospital [ ] (c) Private hospital [ ]  
(d) Clinic/Dispensary/Health Center [ ] (e) Chemist/Pharmacy [ ]  
(f) Herbal/Spiritual Home [ ] (g) All of the above [ ] (h) None of the above [ ]  
(i) Others (Specify) \_\_\_\_\_
46. Which of the health facilities do you often go for treatment?
- (a) Teaching/specialist hospital [ ] (b) General hospital [ ] (c) Private hospital [ ]  
(d) Clinic/Dispensary/Health Center [ ] (e) Chemist/Pharmacy [ ]  
(f) Herbal/Spiritual Home [ ] (g) None of the above [ ] (h) Others (Specify) \_\_\_\_\_
47. Why do you prefer the type you go to?
- (a) Only one available [ ] (b) Competent/qualified staffs [ ] (c) Well equipped [ ]  
(d) Cheaper [ ] (e) Nearest [ ] (f) Others (Specify) \_\_\_\_\_
48. Type of health services you receive?
- (a) Consultation only [ ] (b) Laboratory test [ ] (c) Consultation and treatment [ ]  
(d) Counseling and information [ ] (e) Purchase of drugs [ ]  
(f) Others (Specify) \_\_\_\_\_
49. Availability of medical personnel and services?
- (a) Always available and accessible [ ]  
(b) Available and accessible only on specific days [ ]  
(c) Not available and accessible [ ] (d) Available only after bribing your way [ ]  
(e) Others (Specify) \_\_\_\_\_
50. Are there facilities for STDs screening in your community? (a) Yes [ ] (b) No [ ]
51. If yes, how is the mode of screening? (a) Free [ ] (b) Not Free [ ]

## APPENDIX II

### FOCUS GROUP DISCUSSION GUIDES ILLUSTRATIVE FGDs GUIDES AND PROBES

<b>S/No.</b>	<b>CORE QUESTIONS</b>	<b>RELATED PROBE QUESTIONS</b>
1	Are you aware of STDs?	How do you know about it
2	Do you know anyone who has suffered from STDs?	What type
3	Do you pay for services rendered to you during hospital visits?	Amount being paid
4	What do you think is the most common form of STD?	How often do you hear about these cases
5	How would you protect yourself from STD?	How effective is the method
6	What do you think are the factors affecting Knowledge of STDs?	Why do you think it's a factor
7	What do you think are the risk factors affecting prevalence of STDs?	Why do you think it's a factor
8	Where do you go for medical treatment?	What are your reasons
9	Are there medical services that attends to STD patients?	How accessible and affordable are they
10	What are your suggestions to Government in improving the quality of medical service and sensitization?	Benefits of sensitization