

**THE ROLE OF POLYGAMY IN THE TRASMISION OF  
HIV/AIDS IN NIGERIA  
A SECONDARY DATA ANALYSIS OF NARHS 2012  
PLUS**

By:

**OKEDIRAN, JAMES OLATUNDE**

**MB;BS (Ogbomoso)**

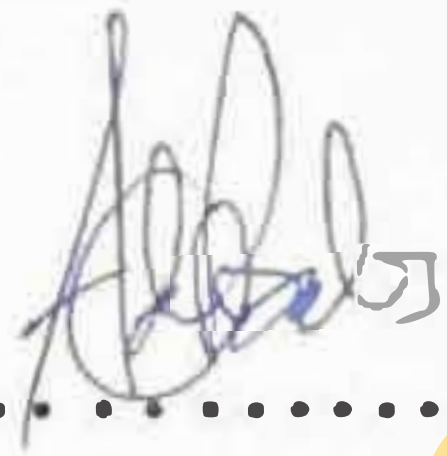
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**FEBRUARY, 2016**

# CERTIFICATION

This is to certify that this thesis is the original and independent research work of **OKEDIRAN, James Olatunde**, under my supervision. All materials listed from other works have been duly acknowledged and referenced accordingly.



.....Date..... 28/01/16 .....

**Dr. Adedokun B.O**

MB:BS (Ibadan), Msc (Epid & Med sta, Ibadan)

SUPERVISOR

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## ABSTRACT

Sub-Saharan Africa is one of the regions with the largest burden of HIV/AIDS and has resulted in health losses over the years. This accounts for over 23.5 million people living with HIV/AIDS representing 69% of the global burden. Concurrent relationships such as a polygamous union are common in SSA and have been documented to be associated with HIV transmission. Studies have shown that having multiple partners overlapping, i.e. having several partners at the same time increases the risk of contracting HIV. Studies on the association of polygamy and HIV/AIDS have been inconclusive and few studies have explored this association in Nigeria. This study seeks to investigate the association of polygamy with HIV/AIDS, as well as to determine knowledge and behaviour concerning HIV and AIDS among practicing polygamists in Nigeria.

A secondary analysis of 31138 respondents from the 2012 National HIV/AIDS Reproductive Health Survey (NARHS plus II 2012) was studied. Along with socio-demographic characteristics, polygamy measured by the variable “number of wives” was used to distinguish the status of monogamy and polygamy. Risky sexual behaviour was measured using type of partners and condom use with partner. Mean knowledge score  $< 4$  was categorized as having poor while a score of  $\geq 4$  was categorized as having good knowledge of HIV. Descriptive statistics, Chi-square test and logistic regression were used to analyze associations at  $P= 0.05$ .

Majority of the respondents were currently married (63.9%). half were self-employed (44.6%) and of an average wealth index (42.4%). Less than half of the respondents were aged between 20 – 29 years with a mean age of  $31.6 \pm 11.9$  years. Majority (62.4%) had sexual intercourse with regular partners, while about 800/1000 and 200/1000 had sex with casual and commercial partners respectively. Majority did not



use condom with regular partner (88.4%), about 300/1000 did not use condoms with casual partners and 100/1000 used condoms with commercial partners. Risky sexual behaviour was prevalent among those who were in polygamous unions.

HIV was more prevalent among those who were divorced/separated/widowed (5.2%) compared to those who were currently married and single. The prevalence of polygamy in this study was 21% and was not associated with HIV/AIDS in this study (OR = 1.16, 95% CI=0.89 – 1.51, p-value = 0.275). The factors which were associated with HIV/AIDS infection were education and knowledge of HIV/AIDS. Those who have no formal education (OR=0.68, 95% CI=0.49 – 0.88, P = 0.006) are less likely to be HIV positive. Those who have good knowledge of HIV were more likely to test positive to HIV (OR=1.23, 95% CI=1.00 – 1.50, P=0.042).

In this study, despite the low prevalence of polygamy, those in polygamous union were engaged more in risky sexual behaviours. These are risk factors for transmission of HIV. Therefore more efforts should be put into educating and promoting HIV prevention strategies especially those aimed at women to reduce the prevalence of HIV infection. Cultural and traditional practices like widow inheritance known to increase the risk of HIV/AIDS should be discouraged.

**Keywords:** Polygamy, Risky sexual behaviour, HIV/AIDS,

**Word count:** 498



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# LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
DHS	Demographic and health survey
EA	Enumeration Areas
FMOH	Federal Ministry of Health
HIV	Human Immune Virus
KZN	Kwazulu-Natal province
PLWHA	People living with HIV/AIDS
NACA	National Agency for the control of AIDS
NARHS	National HIV/AIDS and Reproductive Health Survey
NGOs	Non-Governmental Organisations
NPC	National population commission
SPSS	Statistical package for Social Scientists
SSA	sub-Saharan Africa
STIs	Sexually transmitted infections
UNAIDS	Joint United Nations Programme on HIV/AIDS
USA	United States of America
USAIDS	United States Agency for International Development
WHO	World Health Organisation



# CHAPTER ONE

## 1.1 Background

Polygamy which is a sub-set of a complex set of social and economic relations is deeply rooted in the culture of several African countries. Polygamy refers to having more than one spouse and consists of polygyny – having more than one wife and polyandry – having more than one husband (Webster dictionary). This socio-cultural practice allows men to have more than one wife, thus placing women at risk of contracting STIs (Smith, 2010; Kadiri, Ahmad, & Mustaffa, 2014)

Manhood is often celebrated and it is established through the amount of sexual pleasures a man enjoys from women; such act is likely to expose them to risky sexual behaviour which might later result into sexually transmitted infections such as HIV/AIDS (Kadiri et al., 2014). Similarly, Sithole (2003) explained that several African communities believe that sexual activity is related to social status and for males, an important expression of their masculinity. In Nigeria, sexual activity by the male gender is viewed as an activity for fun and fame; if a man sleeps around, he is more popular while a woman that involves in similar despicable act is viewed in a disapproving way (Ebisi, 2012; Kadiri et al., 2014)

Polygamy is practiced widely in Africa especially with the advent of prominent persons who are getting involved in it. While polygamy still remains common in much of Africa, the spread of polygamy, stretching from Senegal to Tanzania, shows that it is common for more than one third of married men to be polygamous. Polygamy has been recognised as a possible contributor to Africa's low savings rates (Tertilt, 2005), widespread



incidence of HIV (Brahmbhatt et al., 2002) and of female depression (Adewuya et al., 2007). Polygyny is often seen as a cultural practice that facilitates the spread of HIV/AIDS (Gausset 2001; Oppong and Kalipeni 2003). Concurrent relationships have been documented to be associated with HIV transmission and studies have shown that having multiple partners overlapping, i.e having several partners at the same time increases the risk of contracting HIV (Shelton et.al, 2004). Therefore the nature of polygamous partnerships is likely to have an independent effect on the spread of the virus as compared to having multiple partners one at a time where partners may not be at risk of being infected by their partners; (Reniers & Tfaily, 2008)

Sub-Saharan Africa (SSA) is one of the hot spots where HIV/AIDS is widely spread and it is more hard hit by the consequences of the epidemic than other parts of the world. It is also the region where the highest numbers of victims of HIV/AIDS are found. Among all the people who are infected by diseases all over the world, about 68% (22.5 million) are living in sub-Saharan Africa (UNAIDS, 2010; Woldemariame, 2013). Nigeria, a part of the sub-Saharan Africa with a high burden of this disease has the second highest number of people living with HIV (UNAIDS 2013). There has also been an increase in new infections which continue to occur primarily through heterosexual contact (Oladele et al., 2014). Krom (2009) in his study found out that the determinants of large HIV/AIDS epidemics are high frequency of sexual partners, absence of condom use, absence of circumcision of males & infection with other sexually transmitted diseases.

Despite the fact that there are studies on HIV and polygamy in Nigeria and SSA, majority had been done through qualitative study (Smith, 2010; Nyathikazi, 2013; Tauzi, 2006). A



large source of quantitative data like NARHS survey will have a broader application to the country as a whole.

## 1.2 Problem statement

The increase and prevalence of certain diseases and health problems in Nigeria with particular reference to HIV/AIDS has been attributed to some cultural practices. These cultural practices have helped to perpetuate this disease (Oyefara, 2013). Others have also argued that social and cultural conditions of a society play an important role in sexual behavior (Reddy, Meyer-Weitz, Van den Norne & Kok 1998). This in turn has a strong bearing on the transmission and causes of HIV/AIDS.

The traditional practice of polygamy, which is legally sanctioned in some parts of the world, allows husbands to have more than one wife. These occur despite international human rights instruments defining equality in marriage and family life through an equal rights and responsibilities framework (Bove & Vallengia, 2008). This is violated in polygamous unions because wives have fewer de facto marital rights and their husbands fewer responsibilities. Polygamy operates to create concurrent sexual networks within marriage between multiple wives and their husband, and in addition to any extra-marital sexual contacts the spouse may have. Direct sexual transmission of HIV can occur in these coexisting sexual networks where the virus is introduced through the spouse's extra-marital sexual contacts or where a new wife who is already HIV positive enters the polygamous union (Reniers & Tfailly, 2008). A formal recognition of polygamous unions



in various countries amounts to reinforcement of the patriarchal notion that women should passively accept their partners' sexual decision making.

In sub-Saharan Africa, polygyny is common and continues to reinvent itself in light of broad social changes. According to all Demographic and Health Surveys of sub-Saharan African countries conducted since 2000 – but this excludes Namibia, where 18% of the female respondents' marital status was 'unknown', the percentage of married women aged 15–49 with at least one co-wife varies from 11.4% in Zimbabwe, to 26.5% in Ivory Coast (median value), to 53% in Guinea. For married men, the percentage with two or more wives ranges from 4.9% in Zimbabwe, to 14.1% in Mozambique (median value), to 36.7% in Guinea ([www.measuredhs.com](http://www.measuredhs.com)). The most widely recognized demographic and health consequence of polygyny is its effect on the transmission of HIV and other STIs. Also in Zambia 60% of the people who are newly infected through heterosexual transmission are infected within marriage or cohabitation (Dunkle et al, 2008).

Nigeria carries the second heaviest burden of HIV in Africa. Although the national median prevalence of HIV has taken a downward turn in recent years, the absolute number of people living with HIV (PLWH) has increased by almost half a million people in three years and AIDS related mortality has also increased in the same time period to about 217,148 annual deaths (NACA 2012). Sexual transmission also accounts for about 80% of cases of HIV infection in developing countries including Nigeria (Olise, 2007; NACA, 2010). It is also the predominant mode of transmission in central and Western Europe (WHO).



It is of importance to note that in Sub-Saharan Africa, 14 000 people a day are estimated to be infected with HIV, while 11 000 die daily from AIDS related diseases (UNAIDS, 2010). In Southern Africa, about 40% of adult women live with HIV. Most of these women are infected within marriage and cohabitation relationships (UNAIDS Global Report, 2010). In Nigeria, it is currently estimated that 3.6% of Nigerians are living with HIV/AIDS (USAID/Nigeria, 2010) and the prevalence of HIV is three times higher among women than the men. This simply buttresses the place of polygamy in the spread of HIV. Traditional practices such as widow inheritance, widow cleansing has been recognized to be directly responsible for the wide spread of HIV (Ejiofor, 2013).

### **1.3 Justification**

HIV/AIDS remains a significant public health challenge globally. Nigeria with a high burden of the disease has the second highest number of people living with HIV in sub-Saharan Africa (UNAIDS, 2009). It is therefore, imperative to promote HIV prevention practice especially in those in sero-discordant relationships as a means of protecting uninfected partners.

The association between polygamy and HIV is not very often empirically verified. In theory, there are several plausible reasons why polygamy may contribute to the spread of HIV. First, polygamous marriages involve multiple partners, each of whom might introduce HIV into the household. Once one of the spouses is or becomes HIV positive, the others are also exposed to HIV (Reniers & Tfamily,2008). There is limited study in Nigeria in the relationship between HIV and polygamy. It is therefore important to also address polygamy, as a cultural issue and as a practice, as it often referred to, as one of



the factors that may propagate HIV and AIDS infection. Hence, prevention interventions, such as rural development programmes, are often pursued in isolation from socio-cultural and socio-economic environment.

Since polygamy is a driver of HIV, this involves the introduction of several partners in the form of wives even inherited ones, it may be right to say that if the cultural practices that tends to perpetuate this trend is dealt with and women are given autonomy to be able to stop their husbands from having sexual intercourse with them, thus demanding the use of condom and other prevention strategies, including the issue of widows inheritance therefore the spread of HIV/AIDS will be reduced. It then follows that there is a need to promote HIV prevention among persons infected with HIV especially those in sero-discordant relationships as a means of protecting their uninfected partners and also, a need to prevent the transmission of HIV infection among sero-concordant couples. Protecting uninfected individuals from acquiring the virus through the promotion of condom use and engagement in safer sexual practices will enable them live longer, healthier and enjoy more productive years.

This study seeks to investigate the possible influence of polygamy on the transmission of HIV/AIDS, as well as to determine the HIV knowledge levels pertaining to HIV and AIDS and polygamy among practicing polygamists in Nigeria. This is to plan goal oriented interventions and adopt policies geared towards improving the sexual and reproductive health of individuals especially those in polygamist unions. The findings from this study will also be used to advice the Government, non-governmental organizations and key stakeholders involved with the affairs of HIV prevention strategies on necessary steps to take in reducing the occurrence of new HIV cases.



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## **1.4 General objective**

To determine the role of polygamy in the transmission of HIV/AIDS

### **1.4.1 Specific objectives:**

- 1) To determine the prevalence of HIV infection among respondents
- 2) To determine the relationship between polygamy and HIV/AIDS among currently married couple.
- 3) To determine the association between risky sexual behavior and polygamy among those who have ever been married.
- 4) To determine the factors associated with HIV/AIDS infection among polygamists



## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Global HIV/AIDS Burden

The pandemic of HIV/AIDS has continually become a grave health and socio-economic consequence plaguing humanity globally for over two decades. More so, in developed and particularly under developed countries this has upturned the health and developmental gains as reflected by some indices such as life expectancy at birth among others (FMOH, 2010)

##### 2.1.1 HIV/AIDS in Nigeria

Nigeria has an estimated population of 160 million (National Population Commission, 2014), making it second to South Africa in the number of people living with HIV/AIDS worldwide, thus representing 9 percent of the global burden of the disease. In 2010, across different states, HIV prevalence ranged from 1.0 percent in Kebbi to 12.6 percent in Benue (Federal Ministry of Health [FMoH], 2011). ). In Nigeria, recent prevalence study revealed that the national HIV prevalence was 3.4% with the estimated number of people living with HIV/AIDS at 3.23 million (NARHS, 2012). Thus Nigeria ranked second to South Africa in terms of population of people living with HIV/AIDS in Nigeria (UNAIDS, 2013). Although, the modes of transmission of HIV/AIDS differs throughout the world (Adegoke, 2010), the World Health Organisation (WHO) identifies three main



routes of HIV transmission among the general population. The leading route of HIV transmission in Nigeria is by heterosexual intercourse, accounting for 80% of the infections; the remaining 20% of infections occur mainly through mother-to-child and transfusion of infected blood and blood products (NACA, 2010; Merrigan et al., 2011). New HIV infections in Nigeria are fuelled by low perceptions of personal risk, multiple and concurrent sexual partnerships which may also stem from polygamous unions, intense transactional and intra-generational sex, ineffective and inefficient treatment services for sexually transmitted infections (STIs) (NACA 2010). It is also well known that a large number of people living in Nigeria are aware of the social and medical consequences of this infection but the spread of HIV though reduced over the years is still alarming.

HIV/AIDS has the potential to ruin the future of sub-Saharan Africa. Already, 90% of the world's orphans live in sub-Saharan Africa, and although transmission rates have slowed, they have not stopped.

## 2.2 Overview on Polygamy

Polygamy is a marriage where a spouse of either gender (sex) may have more than one mate at the same time (Webster Dictionary). When this union of two people is not formalised legally by customary marriage but is created by an agreement to eventually get married, it is called cohabitation. The Oxford advanced dictionary defines a polygamist as one who has more than one husband or wife. Colloquially speaking, polygamy is understood as the opposite of polyandry.



The practice of polygamy is a criminal offense in countries like United Kingdom (UK), United States of America (USA) and many countries in the West. However, over three billion people around the world still practice polygamy (CAPWOI, 2004). In countries where monogamy is majorly practiced like the USA, over 100 000 Mormons practice polygamy secretly and illegally. Similar situation is also found in Western Europe where an estimated 100 000 people practice polygamy secretly and illegally (Kilbride & Page, 1994). In Russia, despite the fact that polygamy is illegal, it is encouraged to correct the disproportional balance between men and women as there are 9 million fewer men than women. Another reason why it is encouraged is to counteract the country's recession and correct Russian population which is falling at about 3% per year (Makhachkala, A.N 2000).

Polygamous marriages are widely found in Africa, the Middle East and Asia. Over 150 countries in Africa and Middle East practice polygamy culturally and legally (Kilbride & Page, 1994). Prevalence of polygamy varies across Africa according to Fox (2010) in "Patterns of marital Concurrence and HIV Risk in Africa" with Senegal having 34.7%, Niger 30.5%, Ethiopia 10.2%, Guinea 47.4%, Mali 36.1%, Burkina Faso 42.2%, Ghana 18.2%, Cameroun 22.6%, Ivory coast 21.3% and Swaziland 15.2%. Badawi (2010) in "Polygamy in Islamic Law" writes that polygamy is not merely for a man to satisfy his passion but is associated with compassion towards widows and orphans as prescribed by the Qur'an. In Islam, the rich are obliged to take care of the less fortunate, the widows and the orphans. Polygamy is gradually declining especially among Muslim communities where all wives are required to be treated equally (Kilbride et al, 2012). This is because polygamy requires a lot of money to keep up the entire family, extended family inclusive.

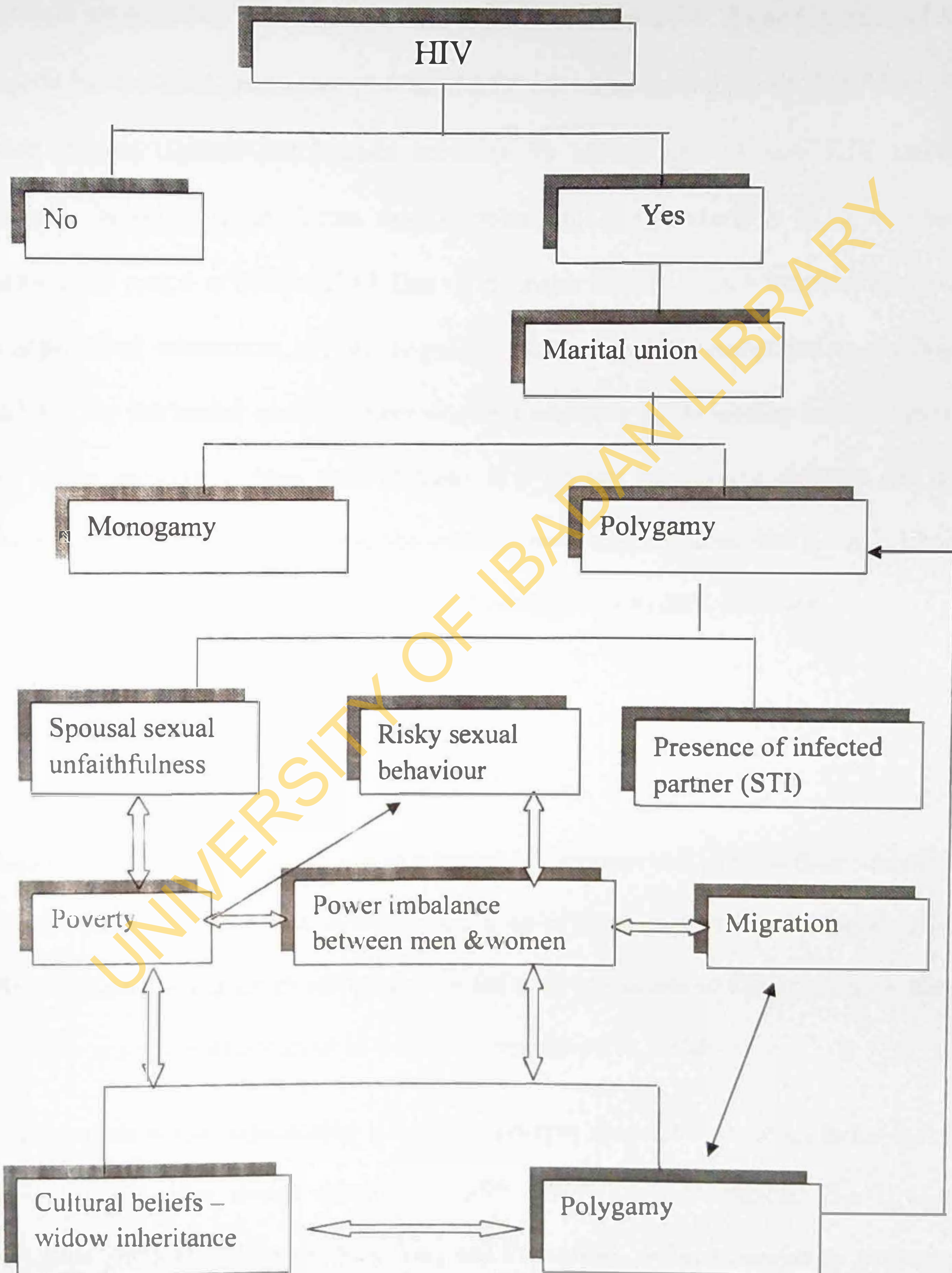


Africans have continued to practice polygamy and have steadfastly resisted viewing family through a Western prism (Njoh, 2006). This is despite the bid of Western feminists to try and eradicate the practice in an effort to improve the status of African women. Njoh (2006) states that Christianity implored Africans to forsake their traditional practices, cultures and beliefs, and taught them that polygamy was ungodly despite the pervasiveness of polygamy in Biblical narratives, quoting among other, Abraham, Isaac and Jacob who practiced polygyny in the Bible. It is further seen that the Western culture of repeated marriage after subsequent divorce and death of a spouse as “serial polygamy”. Khapoya (1998) as cited by Njoh (2006) feels that in African tradition, as in Western culture, marriage has always been socially desirable and that there is overt bias against unmarried persons. Because of the undersupply of marriageable men, polygamy becomes socially necessary. This is not only to ensure continuation of society, but also to provide for the needs of the many marriageable women who would otherwise be unable to enjoy the status and benefits associated with marriage. Multiple wives increase the chances of the sought after male offspring, who are usually heirs to their fathers and also increase the numbers of small families. Polygamy also ensures that a widow and her children can be inherited and cared for by the late husband’s brother, even if he was himself already married. Polygamy is therefore a source of wealth and social prestige in traditional Africa.

Polygamy has been known to be associated with patrilineal relationships where women have less access to landed properties amongst others and most prevalent in West Africa. Polygamy is still accepted in many communities in Nigeria especially among those in the rural areas, inner city and Muslims (Erinosho et.al, 2012).



Conceptual framework





## **2.4 Prevalence of HIV infection**

Globally of all the people living with HIV, 9% of them live in Nigeria (UNAIDS 2014), although compared to other countries in sub-Saharan Africa (19.1% and Zambia (12.5%), Nigeria has the least prevalence (3.4%) of HIV infection among adults (UNAIDS 2014). South Africa, Uganda and Nigeria accounts for almost half of new HIV infections annually in sub-Saharan Africa despite achieving 35% reduction in new infection between the period of 2005 – 2013. One of the major drivers of new infections in Nigeria is unprotected intercourse, gender inequality which is greatly embedded in the Nigeria society. The patriarchal society further weakens women's rights leading to high infertility and undue pressure to have male children. If a woman has female children she is not likely to use contraception because she wants to have male children and if she is likely to be in a polygamous union, this increases her vulnerability to HIV infection.

### **2.4.1 HIV and concurrent sexual behavior**

Sexual behavior is the manner in which humans experience and express their sexuality. It also depicts a person's sexual activity whether he or she engages in heterosexual activity. Therefore people engage in sexual activity for a lot of reasons at different times. Sexual behavior is a major determinant of sexual and reproductive health.

A concurrent sexual relationship is used to describe situations where an individual has several overlapping sexual relationship with more than one person. The UNAIDS reference group on Estimates, Modelling and Projections defined concurrent partnership as overlapping partnership where sexual intercourse with one partner occurs between



two acts of intercourse with another partner. Concurrent sexual relationship has been described as one of the drivers of HIV pandemic (Halperin & Epstein, 2007; Mah Halperin, 2010). Multiple sexual relationships have been recognized as one of the important factors contributing to the global burden of HIV epidemic. This is particularly in sub-Saharan Africa where sexual intercourse seems to be the main mode of HIV transmission. In sub-Saharan Africa, most of the individuals infected with HIV are majorly male and female who maintain stable relationship (Glynn et.al, 2003). In these stable relationships, the infection is either gotten prior to entering a stable relationship thereby infecting the new partner, placing him or her at risk or through a partner's engagement in concurrent relationships. Marriage has also been found to be associated with HIV infection among men and women.

Watts and May using a mathematical model demonstrated that the increasing prevalence of HIV in a population will further result in high rates of concurrent relationships when compared with serial monogamy. Although concurrent relationships tend to be a driver of HIV transmission, some authors have also argued that there are still gaps in evidence to support the place of concurrent relationships in the transmission of HIV. It is still known evidence that multiple sexual partners which concurrent relationships is a part of increases the risk of HIV and other sexually transmitted infections (STI). Several studies throughout Africa have attributed community beliefs such as the nature of men's strong sexual desires, the need to meet their sexual needs, the social acceptability of men in the society as being free to have several women as wives or concubines because it is often believed that a man is allowed to have sexual variety and adventure. These reasons have been reported as being the key reason for engaging in concurrent relationships. Marital



satisfaction and sexual unavailability of their wives especially during postpartum are some of the reasons described for having concurrent sexual relationships (Halperin & Epstein, 2004; Shelton, 2007). Women are also known to engage in concurrent relationships, reasons for engaging in these acts are desire for financial assistance and a form of revenge on an unfaithful partner.

#### **2.4.2 Extramarital concurrency and HIV infection**

Extra marital concurrency has been positively associated with HIV infection especially at the individual level. This type of relationship has also been prevalent among Africans. The prevalence of extramarital unions has suddenly increased leading to a decline in polygamy. Mishra Hong, Bignami-Van Assche & Barrere who studied the role of partner reduction and faithfulness in HIV prevention in using the DHS survey found that across the countries, being unfaithful in marriage increases the risk of contracting HIV. In this same study, having more lifetime partners posed less risk than being unfaithful in the past year. Widows and divorcees who are married as second wives into polygamous unions may contribute to the prevalence of HIV at the individual level

#### **2.5. Polygamy and HIV/AIDS**

Polygamous relationships permit men to have multiple wives, thus increasing the likelihood of diseases increasing beyond limits. Nonetheless, there is a danger that if the husband cannot satisfy the wives, they will be tempted to look for sex outside of the marriage. One of the partners may be infected and this will increase the risk of



contracting and spreading HIV. Hence infidelity has become one of the most important factors in the transmission of HIV/AIDS.

Polygamists are likely to be vulnerable to STI and the health consequence of Polygamy is its effect on the transmission of HIV and other sexually transmitted infections. The age difference between the men and their wives may persuade the women to seek for sexual satisfaction outside of marriage. This could make these younger women to exchange sex for material or monetary gains with the inability to negotiate condom use. The consequences of such actions by these women are increased risk of contracting STIs including HIV/AIDS which may be introduced into the marriage (Tawfik & Watkins, 2007). Apart from seeking attention and sexual gains, many females also become infected from a partner within marriage or cohabitation (Mogotlane et al. 2007). Mogotlane et al. (2007), in their study about women's perspectives on the reasons for HIV and AIDS prevalence in rural area of KZN, found that polygamy remains culturally acceptable, but that "*ubusoka*" (having multiple sex partners for a male) is a different matter. According to their study, *ubusoka* is not culturally encouraged. From the findings of this study, it can be argued that the Zulu culture permits polygamy, but not extramarital sexual relations.

Polygamy has been argued by some researchers to be associated with the risk of contracting HIV/AIDS (Noble, 2008). Others have also associated it with sexual necessity and economic factors, linking it to poverty and quest for many wives (UNAIDS 2008). The quest for more children especially male children mostly found in Africa and common among polygamist unions where wives are competing among themselves has been shown to perpetuate the spread of HIV/AIDS. These women are usually at the



mercy of their husbands and thus are less likely to negotiate condom use for protection because they are competing among themselves (Sringi, 2010). Mhirimtengerenji (2007) in their study in Swaziland found that patriarchy and polygamy is strongly rooted in their culture, thus making it difficult to fight the spread of HIV/AIDS. HIV/AIDS in this study was also found to be associated with sex trade, migration, polygamy and teenage marriages where they are used as leverage to alleviate poverty.

In some culture, teenagers are taken as co-wives once they reach puberty, thus exposing them to unwanted pregnancies and sexually transmitted infections including HIV. These women are made to feel guilty if they do not accept such marital unions especially when it is being introduced by the elders and their parents. These young girls are made to marry much older men and they are not allowed to have safe sex because older men tend to be violent against any advice related to sexuality (Akaranga & Ongong'a 2013). However, polygyny which is a form of polygamy tends to shape man's emotional and sexual relationship to his wives, thus it is known to increase the risk of contracting sexually transmitted infections (STIs). In a polygamous union, relationships between spouses are mostly marked by loose emotional ties, lack of communication about sexual health related issue. These sexual health related issues include condom use, important symptoms and treatment. It is also associated with extramarital sexual activity which is common among polygamous men especially during the period of postpartum sexual (Lawoyin & Larsen, 2002) and during the premarital search for new wives (Mitsunaga, Powell, Heard, & Larsen, 2005).

Contrary to these findings, even with the much talked about impact of polygamy in the spread of HIV/AIDS, some other studies have also reported that polygamy neither is



really nor implicated in the spread of HIV/AIDS. A community-based study in Southwest Nigeria reported that rather than polygamy seen as the cause of the spread of the epidemic, extra-marital sexual relationship has been shown as the main risk for the transmission of HIV/AIDS (Lawoyin & Larsen, 2000). However the risk for contracting the disease is really not peculiar to them rather, it is seen as a way of curbing men's sexual desires (Saddiq et.al, 2015).

## **2.6 Factors associated with HIV/AIDS infection among polygamists**

### **2.6.1 Infidelity**

Polygamous relationships permit men to have multiple wives, increasing the probability of diseases increasing exponentially. However, there is a danger that if the husband cannot satisfy the wives, they will be tempted to look for sex outside of the marriage. One of the partners may be infected and this will increase the risk of contracting and spreading HIV. Hence infidelity has become one of the most important factors in the transmission of HIV/AIDS.

### **2.6.2 Widow inheritance**

Widow inheritance is mostly prevalent in Africa. It is a practice where a woman who has lost her husband marries the younger brother of the deceased even if he is already married. Widow inheritance is one of the practices that increase the chances of transmission of HIV to other wives if the deceased died of AIDS (Malungo, 2001).



### 2.6.3 Migration

HIV can readily be transmitted when individuals migrate from regions where there is a high prevalence of HIV. For polygamous unions where the men maintained two or more homes, likely an urban area where HIV is more prevalent and rural area where it is less prevalent, there is a higher risk of transmission (Lawoyin, 2000).

### 2.7 Risky sexual behaviours among polygamist

Sexual behavior is a major determinant in the transmission of HIV/AIDS but due to the cultural and religious reasons sex is traditionally a very private affair. This actually makes it difficult to study and identify the various facets of sexual behavior. Discussions about sex are mostly seen as unacceptable. In Nigeria as in other parts of sub-Saharan Africa, sexual intercourse is the main mode of transmission of HIV as well as other sexually transmitted infections. The understanding of patterns of sexual behaviour is important in assessing the factors contributing to the HIV and AIDS epidemic and other sexually transmitted infections, and also to determine the impact of interventions on sexual behaviour (NARHS Plus II, 2012). According to the NARHS 2012, it is shown that virtually all respondents over 20 years have had sexual intercourse. One of the most important behavioural determinants of HIV transmission is multiple partners. Poverty also plays an important role in the engaging in risky sexual behaviours in Nigeria (Ekanemhe et al, 2012). Risky sexual behaviour include:



### **2.7.1 Multiple sexual partners**

Risky sexual behavior may be common among polygamist unions as polygamous women may be less likely to be emotionally, sexually and mentally satisfied. As a result, they may be more likely to have multiple partners to satisfy their needs (Hattori & Dodoo, 2007). Multiple sexual partnerships are believed to be motivated by curiosity or the need to have so many female sexual partners.

### **2.7.2 Condom use**

Condom use among married persons is particularly low especially where men may perceive their wives' request for condom use as infidelity (Lawoyin & Larsen, 2002; Lugella et.al, 2004). Another trend is low condom use is the autonomy of wives to negotiate condom use before sexual intercourse, most of the times the men have the final decision as to either use a condom or not to use (Saddiq et.al, 2015). Since new infections continue to occur mainly through heterosexual contact. Efforts at prevention of new HIV infection are focused on protecting the uninfected individuals from acquiring the virus particularly through the promotion of condom use. Evidence has shown that consistent correct use of condom has been widely recommended as a public health strategy worldwide against sexually transmitted infections, including heterosexual transmission of HIV infection (NACA, 2010; FGN, 2009; Van Rossem, 2011). Since HIV in Africa is spread primarily through unprotected sex, safe sex practices such as condom use can reduce HIV spread significantly. Analysis of the AIDS epidemic in Uganda has



confirmed that increased condom use, and a reduction of sexual partners, was an important factor in the decline of HIV prevalence in the 1990s (UNFPA, 2011).

Agbesu (2003), in an analysis of condom use in 20 countries in sub-Saharan Africa, reported that levels of condom use are still very low and vary widely. The proportion of persons who reported using condoms during the last sexual encounter ranged from 6% to 28% among men and 1% to 9% among women. A study in South Africa also confirmed that condom use was tragically low among married women, with only 7% of them using condoms in their last sexual intercourse with their spouse. Compared to women with regular marital partners, condom use was 3.7 times more likely among women with casual partners and 2.4 times more likely among non-marital regular partners (Camlin & Chimbwete, 2003). Since married women are having sex more frequently than unmarried women, and they are rarely using a condom for protection, they are at a much greater risk for acquiring HIV than would be estimated.

## **2.8. Sexually transmitted infections (STI) and HIV**

STI are a significant pointer to unprotected sexual intercourse which could lead to HIV/AIDS. The acquisition of new cases of STI and treatment shows an indication of engaging in risky sexual behaviours. These sexual risk factors and behaviour are usually associated with HIV infection transmission (Osonde, Kakaire & Kaye, 2012).

Furthermore having numerous partners at different times can increase the risk of contracting sexually transmitted infection thus posing greater risk for HIV transmission.

Studies have suggested that differences on HIV transmission rates are due to the



differences in acquiring STIs (O'Farrel, 2001). STI coinfections are believed to enhance the heterosexual transmission probabilities of HIV by a factor ranging from two to five, although a handful of studies have estimated an even larger effect (Fleming and Wasserheit 1999).

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## CHAPTER THREE

### METHODOLOGY

#### 3.1 Study design

The study is a cross sectional study using secondary analysis of the 2012 National HIV/AIDS and Reproductive Health Survey (NARSH plus II 2012). The 2012 National HIV/AIDS and Reproductive Health Survey (NARHS plus II) was a nationally representative survey carried out to provide information on key HIV & AIDS and reproductive health knowledge and behaviour related issues. The survey included a second wave of the biological marker component (HIV testing) and was called NARHS plus II. The NARHS Plus obtained accurate HIV prevalence estimates and information on behavioral and other risk factors related to HIV infection at the national, zonal and to some extent the state levels.

#### 3.2 Description of NARHS 2012 Plus

The population for the 2012 National HIV & AIDS and Reproductive Health and Serological Survey (NARHS Plus) was drawn from all females aged between 15 and 49 years and males aged 15 to 64 years living in regular households in Nigeria.

It excluded the homeless and persons living in institutional buildings such as hotels, panel homes, rehabilitation centres and school hostels among other similar dwelling places during the survey period. A nationally representative sample of females aged 15-49 years and males aged 15-64 years living in households in rural and urban areas in Nigeria was drawn from the updated master sample frame of rural and urban localities and



Enumeration Areas developed and maintained by the National Population Commission (NPC). It is a national survey. The study area consists of all the 36 states of the federation and the Federal Capital Territory.

Probability sampling was used for the survey. Multi-stage cluster sampling method was used to select eligible persons with known probability. Stage 1 involved the selection of rural and urban localities. Stage 2 involved the selection of Enumeration Areas (EA) within the selected rural and urban localities. Stage 3 involved the listing and selection of households while stage 4 involved selection of individual respondents for interview and testing. Overall, 35,520 households and 35,520 individual respondents were selected for final interview of which 32,190 households (91%) and 31,235 individuals (88%) were successfully interviewed resulting in a 2.5% non-response rate. A total of 24,152 of the individuals that responded to the interview (which represent 78%) were successfully tested for HIV.

Data was collected by canvassing method from households to households with personal interactive interview. Two structured and semi-structured questionnaires – one each for individuals and households was used to elicit information. Sampling weights were applied in the analysis. The weighting in the analysis was based on the sampling fractions derived from sample size and the projected population of the eligible persons for the year 2012 for the states.

From the NARHS data, the total sample size is 31,138. 21,290 of these were ever married i.e. currently married, divorced, separated and widowed. The respondents that were currently married were 19,907 and those in polygamous relationship were 3872. 23,497 respondents were tested for HIV. Out of the 21,290 respondents studied, 14302



individuals were tested for HIV and had HIV result. Since the survey questions were not completely standardized, the variable “number of wives” was used to distinguish the status of monogamy and polygamy. The selection of useful socio-demographic factors to explain polygamy is based on factors such as age, sex, educational level, occupation and the wealth index. In this study, I evaluated the association between socio-demographic characteristics, sexual behavior, HIV test result and polygamy. Finally the association between polygamy and HIV status after controlling for socio-demographic characteristics (age, sex, educational level, wealth index) and sexual behavior of respondents was evaluated by logistic regression.

### **3.3. Study population**

The study was conducted amongst all respondents between the ages of 15 – 64 in the NARHS data.

#### **3.3.1. Inclusion criteria**

Eligible participants were male and female in the reproductive age group.

#### **3.3.2. Exclusion criteria**

Respondent who are not in the reproductive age group.

### **3.4 Statistical Analysis**

Data was analyzed using SPSS version 20.0. Descriptive statistics was used to describe the data. Univariate analysis was done to show the distribution of respondents by the key variables. Chi square test was used to measure the association between HIV/AIDS infection and socio-demographic characteristics (age, sex, educational level, occupation, wealth index) sexual behaviour factors and marital status (polygamy)



### 3.5 Description of variables used in the Analysis

The independent variables in this study include socio-demographic characteristics like age, sex/gender, educational level, occupation, wealth index, polygamy measured using “number of wives” of respondents and risky sexual behaviour.

Questions used to assess risky sexual behaviours were the number of partner(s), type of partners (regular, casual, commercial partners), condom use with partner (sometimes, never, every time). Questions about sexual behavior and condom use in the previous three months with spouse/partner that you live together with i.e your husband/wife; casual and commercial partners. Regular partners was defined as “your main or primary partner with whom you have an ongoing sexual relationship (you might call him/her your lover or husband/wife)”. A casual partner was defined as “your sexual partner whom you have not met before having sex or with whom you have had only casual acquaintance” (Chakrapani et al. 2010). Commercial partner was defined as “your sexual partner whom you receive money for having sex with her/him. And she/he is not your regular partner but a non-regular partner” (Bateganya et al. 2005). Consistent condom use was defined as always using a condom for vaginal and anal sex; otherwise condom use was considered to be inconsistent (Chakrapani et al. 2010). Risky sex was defined as inconsistent or no condom use with partners of HIV-negative or unknown sero-status in the previous 3 months (Bunnell et al. 2006).

The dependent variable in this study is HIV status which describes status of partner (positive or negative).



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### 3.6 Data management

Data was cleaned and analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Data cleaning helped check inconsistencies of the data collected. The NARHS was further weighted with the variable area. Number of wives was used to categorize respondent into the family types such that those who have just one wife were categorized as monogamous while those having two or more wives was categorized as polygamous. Marital status was also regrouped into single, currently married and those who are widowed, divorced and separated. Age was grouped into 15 – 19 years, 20 – 29 years, 30 – 39 years, 40 – 49 years, 50 – 59 years and 60 years and above while educational level of respondents was further regrouped into two comprising of no formal/primary school and secondary school/higher for the purpose of analysis. Occupation was grouped into those who were unemployed, self-employed and civil servants. Indicators such as ownership of television, fridge, cow (s), goat (s) bicycle, fan, kerosene stove, generator, grinding machine and other items were subjected to principal component analysis to produce a common factor score that would be used to divide into quintile. The results from the principal component analysis extracted five variables which were ownership of fan, motor cycle, television, donkeys and boat and television. Wealth index was divided into poorest, poor, average, wealth and wealthiest. For this research poor and poorest was combined to poor while wealthy and wealthiest was combined to wealthy and average so as to have three groups.

Comprehensive knowledge of transmission and prevention of HIV/AIDS in this study is referred to knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting the AIDS virus,



knowing that a healthy-looking person can have the AIDS virus, and rejecting the 2 most common local misconceptions about AIDS transmission or prevention of the AIDS virus. Knowledge of transmission and prevention of HIV/AIDS was determined based on five questions which were “sex with faithful partner”, condom use, “transmission of HIV through mosquito bite”, “HIV transmission through sharing of utensils” and “is it possible that a healthy-looking person has the virus that causes AIDS”. They were further recoded as those having the right option to be “1” and those having the wrong option to be “0” for each question respectively. Total obtainable scores were between zero and five; a mean knowledge score of 3.3 was used to categorize into poor and good knowledge. A mean score  $< 4$  was categorized as having poor knowledge while a score of  $\geq 4$  was categorized as having good knowledge.

For the purpose association and logistic regression, risky sexual behavior was further coded as risky and non-risky sexual behaviour using two components of risky sexual behaviour were used and they were multiple sexual partners, condom use.

Sexually transmitted infection (STI) was assessed using the history of having STI in the past 12 months. STI was further coded as having STI and not having STI.

HIV test result was coded in to 1 and 0 such that 0 was coded as HIV negative and HIV positive was coded as 1 for the purpose of binary logistic regression.

Descriptive statistics, tables and figures were used to summarize variables. Chi-square test was used to test for significance between independent social demographic characteristics (age, sex, education, occupation, wealth index), risky sexual behavior and family type (polygamy) and HIV test result at statistical significance  $p < 0.20$ . Binary



logistic regression was used to identify and to adjust for potential confounders for the outcome variable.

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## CHAPTER FOUR

### RESULTS

#### 4.1. Socio-demographic characteristics

Table 4.1 shows the socio-demographic characteristics of respondents. Majority of the respondents were currently married (63.9%), half were self-employed (44.6%) and of an average wealth index (42.4%). Less than half of the respondents were aged between 20 – 29 years with a mean age of  $31.6 \pm 11.9$  years. Less than a quarter (21%) of respondents in this study was of the polygamous family type

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**Table 4.1** Socio-demographics distribution of respondents (N = 31138)

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age (31138)</b>		
15- 19	515	16.6
20 – 29	9674	31.1
30 - 39	7873	25.3
40- 49	5743	18.4
50- 59	1795	5.8
60 and above	895	2.9
<b>Sex (31138)</b>		
Male	15571	50.0
Female	15567	50.0
<b>Education (31091)</b>		
No formal	7163	23.0
Quranic/primary	7443	23.9
Secondary/higher	16486	53.0
Missing system	47	
<b>Occupation (28538)</b>		
Unemployed	11980	38.5
Self-employed	13887	44.6
Civil servant	2671	8.6
Missing system	2600	
<b>Wealth index</b>		
Poor	7232	23.2
Average	13184	42.4
Rich	10662	34.3
Missing system	16	
<b>Marital status (30730)</b>		
Currently married	19907	63.9
Single	9599	30.8
Widowed/separated/divorced	1225	3.9
Missing system	407	



**Table 4.2a Prevalence of polygamy (21290) among respondents**

The prevalence of polygamy is 21%

<b>Variable</b>	<b>Frequency</b>	<b>Percentages</b>
<b>Family type (21290)</b>		
Monogamy	14548	79.0
Polygamy	3872	21.0
Missing system	2871	

**Table 4.2b Knowledge of HIV/AIDS among those who have ever been married**

<b>Variable</b>	<b>Frequency</b>	<b>Percentages</b>
<b>Knowledge (21290)</b>		
Good	13996	73.0
Poor	5174	27.0
Missing system	2120	

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### **4.3. Association between socio demographic characteristics and polygamy among those ever married (n=21290)**

Among those who are polygamous, about a quarter (24.4%) were females compared to males (17%), less than half were unemployed (30.0%) compared to those who were self-employed and civil servants. Less than a quarter of the respondents (23.9%) were aged 40 – 49, compared to the others, Less than half of the respondents had no formal education (31.2%) compared to those who were in Quranic/primary school (24.8%) and secondary school/higher (10.8%). There was a statistically significant association between age, sex, educational level, occupation, wealth index, and polygamy.

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**Table 4.3 Association between socio demographic characteristics and polygamy among those who have ever been married (n=21290)**

Variables	Monogamy (%)	Polygamy (%)	X <sup>2</sup>	P – Value
<b>Age</b>				
15- 19	465 (83.3)	93 (16.7)		
20 – 29	3800 (81.7)	849 (18.3)		
30 - 39	5018 (79.9)	1265 (20.1)	77.31	<0.001*
40- 49	3514 (76.1)	1106 (23.9)		
50- 59	1216 (77.6)	351 (22.4)		
60 and above	535 (72.1)	207 (27.9)		
<b>Sex</b>				
Male	7031 (82.9)	1448 (17.0)		
Female	7517 (75.6)	2423 (24.4)	146.85	<0.001*
<b>Education</b>				
No formal	3781 (68.8)	1711 (31.2)		
Quranic/primary	4073 (75.2)	1343 (24.8)		
Secondary/higher	6677 (89.2)	812 (10.8)	853.72	<0.001*
<b>Occupation</b>				
Unemployed	3416 (70.0)	1466 (30.0)		
Self-employed	8186 (81.0)	1918 (19.0)	310.1	<0.001*
Civil servant	1385 (86.7)	212 (13.3)		
<b>Wealth index</b>				
Poor	3393 (82.3)	732 (17.7)		
Average	6131 (80.5)	1484 (19.5)	93.16	<0.001*
Rich	5015 (75.3)	1649 (24.7)		

\*significant variables



#### 4.4. Sexual behavior of respondents

Table 4.4 shows the distribution of risky sexual activity of respondents. Majority (62.4%) had sexual intercourse with regular partners, while about 800/1000 and 200/1000 had sex with casual and commercial partners respectively. Majority did not use condom with regular partner (88.4%), about 300/1000 did not use condoms with casual partners and 100/1000 used condoms with commercial partners.

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**Table 4.4 Risky sexual behavior of respondents among those who have ever been married (21290)**

<b>Variables</b>	<b>Frequencies</b>	<b>Percentages</b>
<b>Do you have sex with your regular partner (16767)</b>		
Yes	13277	62.4
No	3490	16.4
Missing system	4523	
<b>Ever had sex with casual partner (n =245)</b>		
Yes	161	0.8
No	85	0.4
Missing system	21045	
<b>Ever had sex with commercial partner (n = 52)</b>		
Yes	35	0.2
No	17	0.1
Missing system	21239	
<b>Condom use with regular partner (13107)</b>		
Every time	654	5.0
Sometimes	868	6.6
Never	11585	88.4
Missing value	8183	
<b>Condom use with casual partner (n = 162)</b>		
Every time	68	0.3
Sometimes	24	0.1
Never	70	0.3
Missing system	21128	
<b>Condom use with commercial partner (n = 34)</b>		
Every time	26	0.1
Sometimes	4	0.0
Never	4	0.0
Missing system	21257	



#### 4.5.1 Association between marital status and HIV test result

5.2% of those who are divorce/separated or widowed are HIV positive compared to those who are currently married or never married. Among those who are male, more of those who were currently married compared to those who were widowed/divorced/separated (3.4%) and those who were never married (2.9%) were HIV positive while among the females, more of those who were widowed/divorced/separated (5.9%) compared to those who are currently married (3.4%) and those who have never been married (3.4%) were HIV positive. ( $p = 0.032$ ). There was a statistically significant association between marital status and HIV sero status (Table 4.5.1)

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**Table 4.5.1 Association between marital status and HIV test result (31138)**

<b>Variables</b>	<b>Positive</b>	<b>Negative</b>	<b>X<sup>2</sup></b>	<b>p – value</b>
<b>All respondents</b>				
Currently married	522 (3.5)	14384 (96.5)		
Single	226 (3.1)	7120 (96.9)	11.74	0.00*
Divorced/separated /widowed	50 (5.2)	919 (94.8)		
<b>Male</b>				
Currently married	250 (3.7)	6561 (96.3)		
Single	126 (2.9)	4277 (97.1)	5.40	0.06
Widowed/divorce/ separated	10 (3.4)	285 (96.6)		
<b>Female</b>				
Currently married	272 (3.4)	7823 (96.6)		
Single	100 (3.4)	2843 (96.6)	12.32	0.00*
Widowed/divorce/ separated	40 (5.9)	634 (94.1)		

\*significant variables



#### 4.5.2 Logistic regression between HIV test and marital status (31138)

Among all respondents those who were currently married (OR = 0.67; CI = 0.49 – 0.91; P value = 0.01) and single (OR = 0.59; CI = 0.43 – 0.81; P value = 0.01) were less likely to be HIV positive respectively. Across gender, females who were currently married (OR = 0.55; CI = 0.39 – 0.78; P value = 0.00) and single (OR = 0.56; CI = 0.38 – 0.82; P value = 0.00) were less likely to be HIV positive respectively. (Table 4.5.2)

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**Table 4.5.2 Logistic regression between association between HIV test and marital status (31138)**

<b>Variables</b>	<b>OR</b>	<b>CI</b>	<b>p – value</b>
<b>All respondents</b>			
Currently married	0.67	0.49 – 0.91	0.01*
Single	0.59	0.43 – 0.81	0.00*
Divorced/separated /widowed	1		
<b>Male</b>			
Currently married	1.12	0.58 – 2.14	0.74
Single	0.86	0.44 – 1.67	0.66
Widowed/divorce/ separated	1		
<b>Female</b>			
Currently married	0.55	0.39 – 0.78	0.00*
Single	0.56	0.38 – 0.82	0.00*
Widowed/divorce/ separated	1		

\*significant variables



#### **4.6. Association between family type and HIV test outcome among those who are currently married**

Very few of the respondents who were of the polygamous family type (2.9%) compared to those who were of the monogamous family type (3.6%) were HIV positive. There was no statistically significant association between respondents who were of polygamous family type and HIV positive. Across gender, there was no statistically significant association between those who were of polygamous family type and HIV sero-status (Table 4.6)

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**Table 4.6 Association between family type and HIV test outcome among those who are currently married (19907)**

<b>Variables</b>	<b>Positive</b>	<b>Negative</b>	<b>X<sup>2</sup></b>	<b>p – value</b>
<b>All respondents</b>				
<b>Family type</b>				
Monogamous	394 (3.6)	10523 (96.4)	3.17	0.08
Polygamous	82 (2.9)	2726 (97.1)		
<b>Male</b>				
Monogamy	195 (3.7)	5039 (96.3)	0.12	0.73
Polygamy	37 (3.5)	1019 (96.5)		
<b>Female</b>				
Monogamy	199 (3.5)	5484 (96.5)	3.67	0.05
Polygamy	45 (2.6)	1707 (97.4)		



#### 4.7. Association between risky sexual behavior and polygamy among those who have ever been married (21290)

Among those who are engaged in risky sexual behavior, majority of the respondents (98.8%) are of the polygamous union compared to those who are of monogamous union (96.4%).

There was a statistically significant association between polygamy ( $P < 0.05$ ) and risky sexual behaviour. (Table 4.7)

**Table 4.7 Association between risky sexual behavior and polygamy (21290)**

Variables	Risky (%)	Non risky (%)	X <sup>2</sup>	P – Value
Polygamy	3826 (98.8)	46 (1.2)	58.71	<0.001*
Monogamy	14027 (96.4)	521 (3.6)		

\*significant variable



#### **4.8 Association between socio-demographic characteristics and HIV test among those who have ever been married**

More of those who were aged 30 – 39 (3.7%) compared to other age groups and those who attained secondary school and higher (4.4%) compared to those who had Quranic/primary (3.4%) and those who did not have any formal education (2.6%) were HIV positive. There was a statistically significant association between age, education ( $P < 0.05$ ) and HIV test result. (Table 4.8)

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#### **4.8 Association between socio-demographic characteristics and HIV test among those who have ever been married**

More of those who were aged 30 – 39 (3.7%) compared to other age groups and those who attained secondary school and higher (4.4%) compared to those who had Quranic/primary (3.4%) and those who did not have any formal education (2.6%) were HIV positive. There was a statistically significant association between age, education ( $P < 0.05$ ) and HIV test result. (Table 4.8)

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**Table 4.8 Association between HIV test and socio-demographic characteristics among those who have ever been married (21290)**

Variables	Positive (%)	Negative (%)	$\chi^2$	P – Value
<b>Region</b>				
North	287	7977	0.61	0.44
South	286	7440		
<b>Age</b>				
15- 19	13(2.5)	497 (97.5)		
20 – 29	15 (2.3)	627 (97.7)	12.24	0.03*
30 – 39	34 (3.7)	895 (96.3)		
40- 49	24 (2.9)	803 (97.1)		
50- 59	8 (3.1)	251 (96.9)		
60 and above	5 (3.4)	141 (96.6)		
<b>Sex</b>				
Male	261 (3.6)	6924 (96.4)	0.07	0.79
Female	313 (3.6)	8493 (96.4)		
<b>Education</b>				
No formal	120 (2.6)	4456 (97.4)	25.61	0.01*
Quranic/primary	157 (3.4)	4522 (96.6)		
Secondary/higher	295 (4.4)	6425 (95.6)		
<b>Occupation</b>				
Unemployed	25 (2.5)	980 (97.5)		
Self-employed	53 (3.6)	1437 (96.4)	2.67	0.26
Civil servant	4 (2.5)	154 (97.5)		
<b>Wealth index</b>				
Poor	140 (4.0)	3379 (96.0)		
Average	239 (3.6)	6389 (96.4)	2.56	0.28
Rich	195 (3.3)	5637 (96.7)		

\*significant variables



#### **4.9 Association between HIV test and other factors (STI history in the past 12 months, Knowledge of HIV among those who have ever been married (21290))**

More of those who had good knowledge (3.8%) of HIV transmission compared to those who had poor knowledge (3.0%) were HIV positive. More of those who had STI (5.9%) of HIV transmission compared to those who had did not have STI (3.4%) were HIV positive There was a statistically significant association between knowledge of HIV, STI history in the past 12 months and HIV test result

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**Table 4.9 Association between HIV test and other factors (STI history in the past 12 months, Knowledge of HIV among those who have ever been married (21290)**

Variable	Positive	Negative	X <sup>2</sup>	P value
<b>Knowledge</b>				
Good	412 (3.8)	10315 (96.2)	5.12	0.02
Poor	114 (3.0)	3639 (97.0)		
<b>STI in the past 12 months</b>				
STI	62 (5.9)	983 (94.1)	17.82	<0.01
NO STI	510 (3.4)	14396 (96.6)		



#### **4.10 Logistic regression of HIV sero-status and socio demographic characteristics and other factors among respondents who have ever been married.**

The factors associated with HIV were age, educational status and STI history in the past 12 months. Those who were aged 50- 59 were more likely to be HIV positive (OR= 2.12, 95%CI =1.08- 4.16, P=0.03), those who have no formal education (OR=0.63, 95% CI=0.50 – 0.81, P = 0.00) and attained Quranic/primary school, (OR=0.81, 95% CI=0.66 – 0.99, P = 0.00) and are less likely to be HIV positive. Those who have never had STI were less likely to be HIV positive (OR=0.56, 95% CI=0.42– 0.74, P=0.00). (Table 4.10)

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**Table 4.10 Logistic regression of HIV test result adjusting for socio demographic characteristics, polygamy, knowledge of HIV and sexual behaviour variables.**

Variables	Odd ratio	95%confidence interval		p-value
		Lower	Upper	
<b>Family type</b>				
Monogamy	1			
Polygamy	1.19	0.87	1.62	0.26
<b>Age</b>				
15 - 19	1.58	0.69	3.64	0.28
20 - 29	1.77	0.94	3.34	0.79
30 - 39	2.09	1.11	3.91	0.22
40 - 49	1.67	0.88	3.15	0.12
50 - 59	2.12	1.08	4.16	0.03
60 and above	1			
<b>Education</b>				
No formal	0.63	0.50	0.81	<0.00
Quranic/primary	0.81	0.66	0.99	0.04
Secondary/higher	1			
<b>Knowledge of prevention/transmission</b>				
Good	1.09	0.88	1.37	0.40
Poor	1			
<b>STI</b>				
STI	1			
No STI	0.56	0.42	0.74	<0.001



#### **4.11 Association between socio-demographic characteristics and HIV test among polygamist.**

More of those who are males slightly higher than (4.7%) compared to those who had quranic/primary (2.9%) and those who did not have any formal education (2.3%) were HIV positive. There was a statistically significant association between education ( $P < 0.05$ ) and HIV test result. (Table 4.11)

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#### **4.11 Association between socio-demographic characteristics and HIV test among polygamist.**

More of those who are males slightly higher than (4.7%) compared to those who had quranic/primary (2.9%) and those who did not have any formal education (2.3%) were HIV positive. There was a statistically significant association between education ( $P < 0.05$ ) and HIV test result. (Table 4.11)

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**Table 4.11 Association between HIV test and socio-demographic characteristics among polygamist (3872)**

Variables	Positive (%)	Negative (%)	X <sup>2</sup>	P – Value
<b>Age</b>				
15- 19	1 (1.9)	52 (98.1)		
20 – 29	15 (2.3)	627 (97.7)		
30 – 39	34 (3.7)	895 (96.3)	2.65	0.75
40- 49	24 (2.9)	803 (97.1)		
50- 59	8 (3.1)	251 (96.9)		
60 and above	5 (3.4)	141 (96.6)		
<b>Sex</b>				
Male	37 (3.6)	1031 (96.4)	1.01	0.32
Female	50 (3.6)	1738 (96.4)		
<b>Education</b>				
No formal	28 (2.3)	1212 (97.4)	8.56	0.01*
Quranic/primary	29 (2.9)	970 (96.6)		
Secondary/higher	29 (4.7)	586 (95.6)		
<b>Occupation</b>				
Unemployed	25 (2.5)	980 (97.5)		
Self-employed	53 (3.6)	1437 (96.4)	2.47	0.29
Civil servant	4 (2.5)	154 (97.5)		
<b>Wealth index</b>				
Poor	16 (2.9)	528 (97.1)		
Average	40 (3.6)	1063 (97.4)	2.18	0.34
Rich	31 (2.6)	1173 (96.9)		

\*Significant variable



**Table 4.12 Association between HIV test and other factors (STI history in the past 12 months, Knowledge of HIV) among polygamists (3872)**

Variable	Positive	Negative	X <sup>2</sup>	P value
<b>Knowledge (2511)</b>				
Good	23 (2.4)	921 (97.6)	1.19	0.28
Poor	50 (3.2)	1517 (96.8)		
<b>STI in the past 12 months (2854)</b>				
STI	2 (5.0)	230 (95.0)	3.27	0.07
NO STI	75 (2.9)	2537 (97.1)		



#### 4.13 Logistic regression of HIV sero-status and socio demographic characteristics and other factors among polygamists.

Table 4.13 shows odds ratio and 95% confidence intervals from the regression of HIV status among polygamist after adjusting for socio demographic factors, knowledge of HIV and STI history in the past 12 months. Educational status was associated with HIV. Those who have no formal education (OR=0.48, 95% CI=0.24 – 0.96, P = 0.04) are twice less likely to be HIV positive. (Table 4.13)

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**Table 4.13 Logistic regression between HIV test result and socio demographic characteristics and other factors among polygamists**

Variables	Odd ratio	95% confidence interval	p-value
		Lower - Upper	
<b>Sex</b>			
Male	1.41	0.76 – 2.60	0.28
Female	1		
<b>Age</b>			
15 - 19	0.00	0.00	0.99
20 - 29	1.39	0.31 – 6.20	0.67
30 – 39	2.38	0.59 – 9.45	0.22
40 – 49	1.43	0.35 – 5.80	0.62
50 – 59	1.34	0.29 – 6.28	0.71
60 and above	1		
<b>Education</b>			
No formal	0.48	0.24 – 0.96	0.04*
Quranic/primary	0.70	0.39 – 1.28	0.25
Secondary/higher	1		
<b>Occupation</b>			
Unemployed	1.47	0.42 – 5.22	0.55
Self-employed	1.78	0.58 – 5.50	0.32
Civil servant	1		
<b>Wealth index (15979)</b>			
Poor	0.99	0.49 – 2.04	0.99
Average	1.18	0.67 – 2.06	1.18
Rich	1		
<b>Knowledge of prevention/transmission</b>			
Good	1		
Poor	0.55	0.27 – 1.09	0.09
<b>STI experience in the past 12 months</b>			
STI	0.55	0.27 – 1.09	0.08
No STI	1		



## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATION

#### DISCUSSION

This study examined the role of polygamy in HIV/AIDS prevalence in Nigeria using the National HIV/AIDS and Reproductive Health Survey (NARHS Plus).

##### 5.1.1 Socio-demographic characteristics of respondents

This study showed that about a quarter of the respondents were from the polygamous family type which could serve as a form of exposure to HIV/AIDS infection. Since polygamy comprises having more partners especially in the case of polygyny where a man has plenty wives, he or his wives may be exposed to HIV/AIDS because polygamy tends to support promiscuous lifestyles especially for men. Polygamy is accepted and recognized as a rich cultural tradition in some areas (Buseh, Park, Stevens, McElmurry, & Kelber, 2006). Less than half of the respondents had secondary education which may be necessary to acquire the basic knowledge for HIV/AIDS transmission and prevention. This is contrary to findings by (Famuyiwa et. al, 2014) in their study of women in cocoa farming households, it was reported that more than half of the respondents had no formal education. This disparity may be attributed to low educational level associated with the rural areas of the country.



### 5.1.2 Risky sexual behavior of respondents

Risky sexual behaviour in this study was prevalent among those who were of the polygamous unions. It was also observed that among those who had ever been married, most respondents did not use condom with their regular partners. This is consistent with other studies who reported that condom use is low especially among married women with only 7% of them using condoms with their spouse. Similarly in Nigeria, condom use among sexually active male and female were 25% and 11% respectively. Oladele et.al, 2014 also stated that the reasons for this low condom use are decreased sexual pleasure, pregnancy desire and not needing to use condom in a stable marital relationship and also preventing the suspicion of infidelity. Findings from this study also reported that less than half of them did not use condom with casual partners. This behaviour obviously predisposes individuals to HIV infection. Findings from this study have also shown that most respondents did not use condom with regular partners among those who practiced polygamy. This conforms to findings by (Famuyiwa, 2014; Bove & Vallengia 2008 & Ejiofor 2013) where it is shown that most women lack the ability to negotiate condom use with their partners. Plausible reasons could be that Women cannot challenge an extra-marital relationship or propose condom use, simply out of fear that they could be left to fend for themselves in a man dominated economic landscape (Marshall & Taylor, 2006). This study also showed that most of those who practiced polygamy did not use condom with casual partners.

Since this study showed that more of those who practiced polygamy had sex with casual partners. This could explain different types of cultural arrangements which have made it



permissible for men to engage in sexual activity with multiple partners. These findings are feeders to the spread of HIV/AIDS in the society.

### **5.1.3 Marital status and HIV/AIDS**

Findings from this study have also shown that among the males, more of those who were currently married were HIV positive while among females, more of those who were divorced/ separated or widowed were seen to have tested positive. Similarly recent studies have shown that women who have been widowed/separated/divorced may be more likely to introduce HIV into marriages (Lurie et.al, 2003; Mishra et.al, 2007). This is consistent with other studies that have reported that prevalence of HIV is three times higher among women than the men. Traditional practices such as widow inheritance, widow cleansing and HIV has been recognized to be directly responsible for the wide spread of HIV especially among women (Ejiofor, 2013). Another reason could be the patriarchal nature of the African society, Nigeria included where women are mostly not employed and made to depend on their husbands to make ends meet. This may make these women to get involved in unsafe sexual activities which may expose them to HIV infection.

### **5.1.4 Knowledge of HIV/AIDS among respondents**

Knowledge of prevention of HIV/AIDS is paramount in reducing the vulnerability of respondents to HIV/AIDS. Although knowledge of HIV/AIDS does not translate to practice of prevention, it is a further step to reducing the prevalence of HIV/AIDS. Findings from this study have shown that majority of respondents had good knowledge of



HIV/AIDS transmission and prevention. This could mean that increased knowledge about HIV/AIDS may be linked to a decrease in practice which could expose them to the HIV infection and social stigmatization of people living with HIV. Therefore, decreasing social stigma is the first step in changing how the society perceives HIV/AIDS. It further shows that knowledge may not translate to the practice of transmission and prevention of HIV/AIDS knowledge at times does not translate to practice of prevention; since knowledge deals with awareness of a particular fact or situation. In this case knowledge of transmission and prevention of HIV/AIDS is important but improving the knowledge by accurately putting up interventions geared towards HIV/AIDS infection is paramount. Individuals might also perceive themselves as having no risk of contracting the virus which may make them nonchalant about the disease. This could also be attributed to denial as reported by Erinoshio et.al, (2012) who reported in their qualitative study that most of the respondents are in denial of the presence of HIV. Most of them do not see the risk of contracting HIV as it is only seen as a figment of imagination.

Although in this study, most of the respondents had good knowledge, their cultural beliefs might have had an impact on their practice and thus affecting the prevalence of HIV in the society. Similar findings was reported by (Famuyiwa et.al, 2014) whose study showed that the women's knowledge of prevention strategies was high but they had corresponding low practices. Even in instances when women were well informed as to their risk of acquiring HIV through sexual intercourse with their male partners, gender disparities in negotiating power within relationships may leave women less able to refuse sex or insist on condom use, especially within marriage (Bajos and Marquet 2000).



### 5.1.5 Polygamy and HIV/AIDS infection

The prevalence of HIV in this study was 21%. There was no statistically significant association between polygamy and HIV/AIDS. Although not significant, fewer people who were of the polygamous family were HIV positive. This further agrees with findings from other studies which have shown that it is not the practice of polygamy per se that really increases the vulnerability of people to HIV/AIDS but the dynamics of the sexual behavior of independent individuals whether in a monogamous union or a polygamous union (Saddiq et.al, 2015). Olayemi et.al (2002) also in their study among antenatal patients in Ibadan found no clear association between polygamy and HIV arguing that it is not associated with the spread of HIV. Contrary to findings in this study, polygamy is seen one of the major cultural hurdles to overcoming the HIV/AIDS epidemic as Adeyeke (2008) in his study of factors that exposes women to HIV infection believed that polygamy accounts for the spread of HIV. Traditional African systems also promote polygamy, especially in rural areas (Buseh et al. 2002). In Swaziland, polygamy is also recognized as a barrier to overcoming the spread of HIV/AIDS (Buseh et al. 2006).



### **5.1.6 Factors associated with HIV/AIDS infection among those in polygamous union**

The factors in this study which were associated with HIV/AIDS infection among those who were in polygamous unions was education. Those who had no formal education and who also attained primary/quranic educational level were less likely to have HIV infection. This is contrary to findings by Famuyiwa et.al, 2014 who reported that low level of education increases the susceptibility of women to HIV epidemic. However, this finding could be due to the fact that individuals who had lower education or uneducated are likely to comply more with healthcare provider's instruction on behavioural change and are less likely to be exposed to technology driven risky and complex relationships as seen among those with higher education (Oladele et.al, 2014).

### **5.2 Conclusion**

This study has shown that HIV/AIDS is not associated with polygamy. HIV was more prevalent among those who were divorced/separated/widowed.

Secondly, most of those who practiced polygamy are still involved in risky sexual behaviour. With most respondents who don't use condom consistently this exposes them to sexually transmitted infections including HIV/AIDS. Since most people are in denial of the existence of HIV/AIDS, they are not inclined to use condom during sexual intercourse with partners whether spouses or casual partners. The place of infidelity is still being seen as a factor, because women are not able to negotiate safe sex so as not to be judged as promiscuous even though the spouse is having multiple partners.



### **5.1.6 Factors associated with HIV/AIDS infection among those in polygamous union**

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### 5.3 Recommendations

Based on the findings in this study, the recommendations are:

1. More efforts and emphasis should be placed increasing the self-esteem of women which makes them less vulnerable thereby reducing their high risk sexual behaviours as well as HIV/AIDS infection.
2. Government and NGOs should promote and educate individuals and the society at large on practice of safe sex.
3. Cultural and traditional practices known to increase the risk of HIV/AIDS should be discouraged in the society.
4. Men should be encouraged to be faithful to their partners and also practice consistent use of condoms.



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Thobekile Jacobeth Lungile Nyathikazi Stellenbosch University <http://scholar.sun.ac.za>  
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