Chapter One: Introduction

1.1 Background

Human sexual behaviour is not only of biological importance, but it is also social. It is the central behaviour around which families are formed and defined, a vital aspect of the psychological well-being of individuals, and a component of a variety of social problems. Among current concerns associated in part to sexual behaviour are the familial problems of marital disharmony and divorce; rape, incest and child molestation; reproductive problems of infertility, sterility, unwanted and mistimed pregnancies, abortion; and health problems related to sexually transmitted infections (STIs) e.g. (Smith, 1998).

The threat of HIV/AIDS has intensified interest in the study of sexual behaviour and the factors influencing it across the globe. The first case of AIDS was reported in Nigeria in 1986. Since then, HIV prevalence rate among adults has risen from 1.8% in 1988 to 5.8% in 2001, then falling to 5.0% and 3.9% in 2003 and 2005 respectively (UNAIDS, 2004 and 2006). According to the 2006 UNAIDS report on the global AIDS epidemic, the population of the people who have died of the infection in Nigeria is over 0.2 million, which represents 0.17% of the entire country's population figure and those that are still living with HIV in the country stands at 2.9 million, representing 2.2% of the country's entire population figure (UNAIDS, 2006). Also, Nigeria has been categorised as one of the countries which need more aggressive intervention programmes to curb this global pandemic based on her population size (UNAIDS, 2005). HIV transmission in Nigeria is virtually through heterosexual contact (UNAIDS, 2006).

Due to the importance of sexual behaviour in general and the health crisis of HIV/AIDS in particular, there is the need to understand the patterns and determinants of sexual behaviour of people (in this case men aged 40-59 years) in Nigeria. This is vital in predicting the future spread

of HIV/AIDS in the country and suggesting appropriate intervention programme that can be employed to curb the spread.

1.2 **Statement of the Problem**

Most studies on sexual behaviour in Nigeria have focussed on adolescents while neglecting middle-aged and older men (Slap et al., 2003 and Ajuwon et al., 2005). This is not unconnected with the fact that the adolescents and youths are often seen as more sexually active than the older men.

Furthermore, the available statistics on HIV/AIDS from the various international organisations such as the UNFPA, UNAIDS, WHO et cetera have indicated that adolescents/young adults (aged 15-24 years) in Nigeria (just like their counterparts across the globe) are highly sexually active and vulnerable to HIV. Anecdotal evidence shows that Middle-aged men (aged 40-59 years) are less likely to contract HIV/AIDS based on the myth that they engage less in sexual activity (Mwenge and Katuta, 2004). This statement has not subjected to an empirical test.

Elsewhere, studies have reported about extramarital sexual activities of men and its impact on well-being and family stability (ICMR, 2002; Fan and Lui, 2004). But in Nigeria, the Nigeria Demographic and Health Survey (NDHS) main report commented of adult men's irregular and non-use of condom, without much focus on their sexual behaviour. This also lumps all adult men together. These men have also been reported to be responsible for higher rate of HIV incidence among female adolescents because of the men's sexual activity (Machipisa, 1999; Luke, 2005 and UNDH, 1999).

Despite these findings, this study investigates the sexual behaviour of middle-aged men (40-59) with a view to understanding the patterns and correlates of these behaviours. This objective is

based on the premise that understanding older men's sexual behaviour has to focus on specific age groups.

1.3 Objectives of the Study

1.3.1 General Objective

This study aims to investigate the patterns and determinants of sexual behaviour of middle-aged men (aged 40-59 years) in Nigeria.

1.3.2 Specific Objectives

- to examine the patterns of sexual behaviour of middle-aged men ; and
- to investigate the factors that influence the sexual behaviour of middle-aged men in Nigeria.

1.4 Justification of the study

Middle-aged men in Nigeria represent 5.5% of the total population (88,992,220). This statistics is based on the 1997 projection of the 1991 population census by the Nigerian National Population Commission (NPC). In addition, the nationally representative 1999 NDHS survey shows that this category of people represents 32.3% of the country's economically active population and that large percentage (64.5%) of them are still sexually active.

The study of human sexual behaviour is of great importance largely because of the threat of HIV/AIDS. Nigeria has been categorised as a country with the third largest population of people living with this infection (UNAIDS, 2006). Despite the fact that Nigeria has low HIV prevalence rate 3.9% compared with some countries in sub-Saharan Africa (e.g. Swaziland 33.4%, Botswana 24.1%, Lesotho 23.2%, Zimbabwe 20.1% and Namibia 19.6%) due to the fact it is the most populous country in the region; her low prevalence rate represents a significant share of the global HIV/AIDS burden (UNAIDS, 2006).

A full-blown HIV/AIDS epidemic connotes severe implications for the country. For instance, it may lead to the decimation of the country's workforce as a result of demographic changes due to mortality and combating it may require more allocation from the national budget. Thus, this may aggravate the current levels of poverty through the diversion of funds and other resources meant for the provision of basic amenities and services for the populace into HIV/AIDS programmes and services. It may also create longer term social problems, particularly with regards to poor upbringing of children orphaned by AIDS and the attendant negative effect on society.

Studying the sexual behaviour of middle-aged men is also important because of an aspect of sexual behaviour (extramarital sexual activities) of men which has been acknowledged to constitute health risk to the health well-being of their spouses and aggravate divorce rate (ICMR, 2002 and Fan and Lui, 2004). These activities are highly hazardous with regards to the risk of HIV infection.

The study is essential also because it will portray whether the middle-aged men are good moral agents or role models to the young ones. Adolescents/young male adults need role models whose lives are worthy of emulation with regards to responsible sexual behaviour. Thus, this will make the promotion of sex education to be effective. Thus, a case of "Do as I say but don't do as I do" will not be obtainable. The study will contribute towards filling the vacuum created by the dearth of studies on sexual behaviour of middle-aged men. It will explore the implications of such behaviours for the purpose of recommending appropriate social and health policy for the country.

1.5 **Definition of Concepts**

The following terms or concepts used in the study are defined for the purpose of clarity.

1. Homosexuality: This refers to the propensity for same-sex sexual behaviour.

2. Heterosexuality: This is sexual behaviour directed toward a person or persons of the opposite sex.
3. Adolescents: These are individuals, whose age falls between 10 and 19 years inclusive, who have undergone puberty but who has not reached full maturity
4. Monogyny: The practice or condition of having only one wife at a time.
5. Middle-aged men: These are men whose age falls between 40 and 59 years inclusive.

1.6 **Organisation of the Report**

This report is made up of six chapters namely: Introduction, Literature Review, Methodology, Profile of Respondents, the Determinants of their Sexual Behaviour and Conclusions. Chapter one provides information on the background, objectives and justification of the study and also the definition of some of the concepts used in the study. Chapter two comprises the Literature Review and Theoretical Framework section, and also the conceptual framework and hypotheses. Chapter three concentrates on Methodology, which is made up of sources of data, method of analysis, variables definition and measurement and limitation of the study. Chapter four and five are for the results. Thus, this section contains all the results of the univariate, bivariate and multivariate analyses performed on all the variables of interest. Lastly, the last Chapter includes the discussion, conclusion and recommendations for policy formulation.

Chapter Two: Literature Review

2.1 Introduction

Interest in the study of sexual behaviour and the factors influencing it has probably never been greater than it is today. This is largely due to the threat of HIV/AIDS. There exists a plethora of studies on sexual behaviour but very few of them have focused on middle-aged men. However, this study will review some of the few studies on sexual behaviours on men in general focussing on the patterns and determinants of such behaviours.

2.2 Previous Studies

2.2.1 Patterns of Sexual behaviour

In Nigeria, the only type of sexual behaviour that is mostly in practice is heterosexuality. The practice of homosexuality is prohibited. In fact, it is a deeply ingrained taboo. However, there exist different patterns of sexual activities among men in the country e.g. extramarital sexual practices, sexual relationship with females of great age disparity, engaging in risky sexual behaviour etc. Most of these aforementioned activities are unsafe and are fuelling the spread of HIV/AIDS in the country. Studies on human sexual behaviour have offered seemingly interesting explanations and diverse evidences on the correlates or determinants of sexual behaviour.

2.2.2 Determinants of Sexual Behaviour

Ethnicity can influence sexual behaviour of men through cultural beliefs, practices and norms that are peculiar to certain ethnic or tribal groups. First, the institution of polygyny in Nigeria has been acknowledged to influence the male tendency to seek multiple sexual partners (Lawoyin, 2000). Second, the custom of prohibiting sexual relation during lactation has been investigated to be partly responsible for the extramarital sexual behaviour of men (Orubuloye et al., 1991). For

instance, among the Yorubas of South-West, Nigeria, breastfeeding mothers are prohibited from sexual relations for at least three years after a birth to ensure survival of the child and during lactation based on the belief that the child will be affected by “poisoned” maternal milk. For instance, Orubuloye et al. (1991) in a study discovered that male extramarital relations were highest in monogynous marriages and were frequently explained by wives periods of postpartum sexual abstinence. Over 66% of the men in the study reported being involved in extramarital relations. Thirdly, it is believed that men have constant need for sex contrary to women. The perceptions of these people are that “a real man needs to demonstrate that he can handle more than one partner” and that “a man needs at least three wives: one to bear his children, one to work and one for pleasure” (Silberschmidt, 2005). Fourthly, the practice of levirate marriage, where a dead man’s widow is remarried to one of his brothers, is practised in the South-West, Nigeria (Degrees du Lou, 1999).

Religion plays important role in the life of individuals in many societies, especially in Nigeria. Studies have shown that the extent to which religion influences individual attitudes and behaviour does not largely depend on affiliation but rather on the degree of integration and commitment of individuals to the doctrines and policies of their respective religious institutions (Lehrer, 2004 and Garner, 2000). In his study on sexual behaviour of university students in Nigeria, Odimegwu (2005) discovered that there is a strong relationship between religiosity and sexual behaviour. His study further reveals that religious commitment is more important than religious affiliation in affecting sexual attitudes and behaviours. Smith (1998) further affirms that those who are committed to their religion are less likely to become sexually active and have extra marital sex partners.

Studies have shown that male sexual behaviour varies in terms of urban-rural residence type. Orubuloye et al. (1997) revealed that 61% of the urban males believed that it is possible to be

contented with one woman at a given time, while 59% indicated that it is sufficient, about 48% of all married men in the urban areas and 66% of those in the rural areas reported that they had had previous extramarital affairs. Almost 32% of urban and 29% of the rural men who had extramarital affairs expressed the fear of contracting an infection. Of those who did not express any fear, 50% in urban areas and 44% in rural areas were using condoms.

It is undisputable that sexuality is a major aspect of marriage institution. It is the institution that legitimises heterosexual practice. There exist different types of marriage across the globe but the ones that are predominant in Nigeria are monogyny and polygyny. Polygyny, the marriage of one man to two or more wives simultaneously is not uncommon in Nigeria and has been acknowledged to be partly responsible for the multiple sex partners-seeking tendencies of men. The Nigeria DHS of 1999 showed that 22% out of those who are in monogynous relationships confessed to have had at least one sexual partner apart from their wives in the last 12 months. Although HIV cannot be spread through sexual intercourse in stable monogynous relationships between uninfected partners, among married women the polygynous lifestyles of their spouses in terms of extramarital sexual practices largely determines the risk of HIV transmission (Ahlburg et al., 1997). Unlike polygyny, extra marital partners generally meet outside the residence and in most cases are unknown to the legal spouse.

Despite a near-universal knowledge and recognition that regular condom use is a major means of preventing sexual transmission of HIV (Lawoyin et al.,2000, Messersmith et al., 2000, Isiugo-Abanihe, 1998, Ogbuagu and Charles, 1993), the level of condom use is relatively low. Even, among those who are using condom, studies have clearly demonstrated that when a man has had intercourse with a new partner a few times, that person is no longer a stranger, and condom use is stopped (NPC, 2000). A study conducted by Lawoyin (2004) on married men's condom use with commercial sex workers (CSWs) in Nigeria shows that out of the 3,178 respondents, 1,755

(55.2%) had never used condoms. Out of these men, 137 had patronised the CSWs in the six months prior to the study. Only 63 (46%) of these had used a condom at the last visit. Young age (less than 30 years) was the only predictor of condom use when with CSWs indicating that those that are above 30 years and who probably belong to middle-aged men category are engaging more in risky sexual behaviours by not using condoms. Thus, various studies have shown that despite the high awareness of condom, most men do not use it during sexual intercourse (Nwokoji and Ajuwon, 2004 and Akwara et al., 2003). Varga (1999) and MPL (2001) provided explanation for the weak link between knowledge, perceived risk and behaviour. In their respective studies, respondents had a fatalistic attitude towards AIDS. The expression 'after all you have to die of something' was cited to justify high-risk behaviour.

2.2.3 **Conclusion**

Heterosexuality, the only form of sexual behaviour that is in practice is Nigeria, follows different pattern among men in Nigeria e.g. sexual relationship with females of great age disparity, extramarital sexual practice etc. Previous studies provide different reasons why men engage in sexual behaviour in Nigeria. First, Ethnicity is said to affect sexual behaviour through beliefs, practices and norms that are peculiar to particular ethnic groups. Second, religious commitment rather than affiliation influence sexual behaviour of middle-aged men. Other factors include urban-rural residence type, marriage type and knowledge of condom.

2.3 Theoretical Framework

There exists a plethora of models and theories by scholars that predict and explain the sexual behavioural patterns. However, the focus of this study is to use an appropriate model to study the sexual behaviour of the middle-aged men in Nigeria. The study, will therefore adopt the Health Belief Model (HBM) with the aim of predicting sexual behaviour of middle-aged men in Nigeria.

The HBM is a psychological model that attempts to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals (Rosenstock et al., 1994). The HBM was developed in the 1950s by social psychologists in the United States Public Health Service to explain the lack of public participation in health screening and prevention programmes. It is based on the assumption that people feared diseases, and that health actions were motivated in relation to the degree of fear and expected fear-reduction potential of actions, as long as that potential outweighed practical and psychological obstacles to taking action. It suggests that preventive health behaviour is influenced by five factors: (i) perceived barriers to performing the recommended response; (ii) perceived benefits of performing the recommended response; (iii) perceived susceptibility to a health threat; (iv) perceived severity of a health threat; and (v) cues to action (Rosenstock et al., 1994). Afterwards, it was recognised that demographic and socio-psychological variables as well as information and experience also affect the likelihood of taking a preventive action.

The HBM is different from other models in that there are no strict guidelines as to how the different variables predict behaviours. Instead, the theory proposes that the individual independent variables are likely to contribute to the prediction of health behaviours. The HBM as described in this section seems to be flawless. One key advantage, for sure, is its flexibility. Nevertheless, the main limitation associated with the introduction of the HBM concept in this

study is its measurement criteria, which were not originally designed to focus on the sexual behaviour of Nigerian middle-aged men.

2.4 **Conceptual Framework**

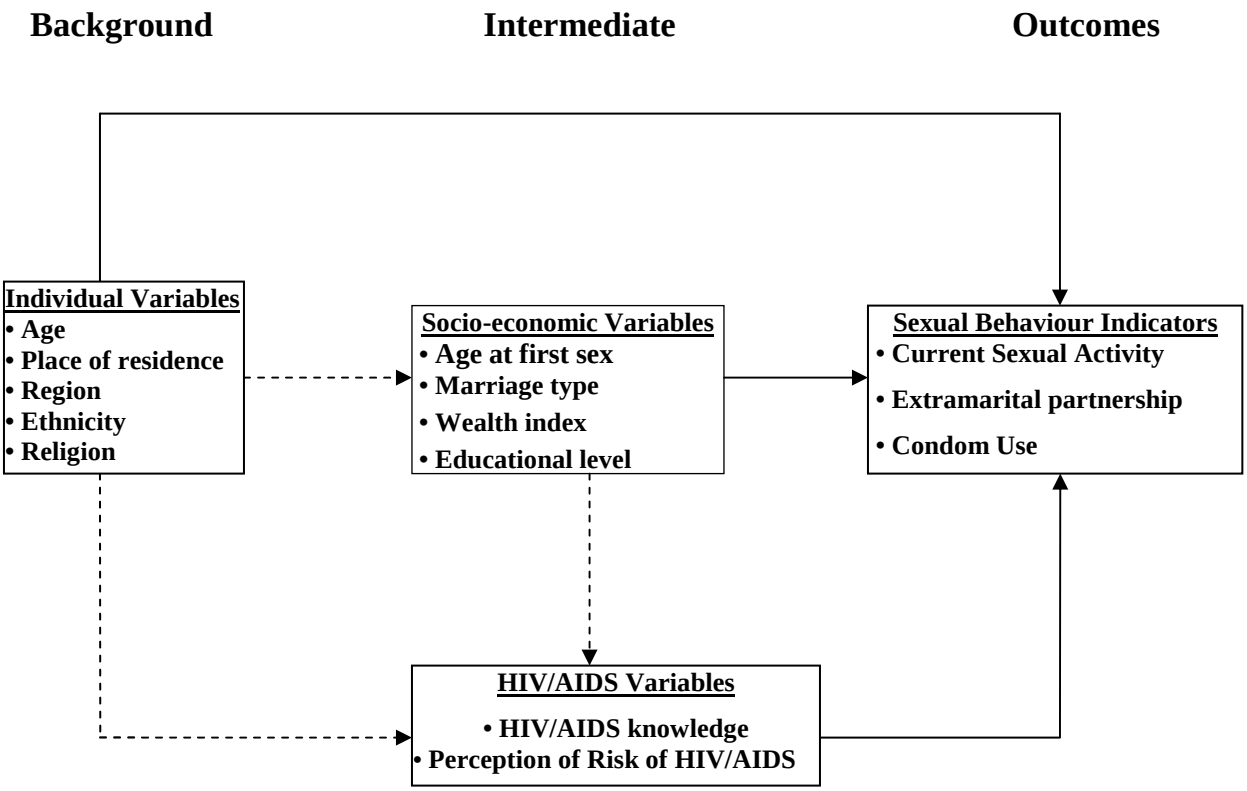
The conceptual framework used in this study is adapted from the HBM framework (Akwara et al., 2003). In this study, the focus is on sexual behaviour as the outcome, while the background and intermediate variables are treated as the explanatory variables. Figure 1 (on page 17) shows the possible associations between a range of background, intermediate and outcome factors.

The conceptual framework entails the following background variables: region, place of residence, age, ethnicity and religion that may influence the respondents' sexual behaviour. The region and place of residence (i.e. urban or rural) of the respondents can determine their knowledge and perception of HIV/AIDS, which could in turn influence their sexual behaviour. The age of a respondent is another factor that may influence their sexual behaviour. Older men are considered to be less sexually active and not likely to be at risk of contracting HIV/AIDS (Mwenge and Katuta, 2004). Although young men may be more vulnerable to HIV/AIDS infection more than older men, the older men also face the same risk of being infected. Ethnicity may influence sexual behaviour through cultural beliefs and practices. Hence, the pressure to conform to ethnic-based beliefs and practices (e.g. in some culture "a real man needs to demonstrate that he can handle more than one partner") may lead a man to acquiring many sex partners. This may also override his concerns about HIV infection that may lead to irregular or non-use of condoms. Religion can influence sexual behaviour through factors such as the age at first sexual intercourse and knowledge of HIV/AIDS.

Also, the impact of some of the intermediate factors categorised as the socio-economic factors (e.g. age at first sexual intercourse, education, marriage and wealth index) and knowledge and

perception of risky sexual behaviour are described as follows. Marriage can influence sexual behaviour. HIV cannot be spread through sexual intercourse in steady monogynous relationships between uninfected partners (Ahlburg et al., 1997). However, among married women their partners' extramarital sexual practices can make them susceptible to the risk of HIV transmission (Ahlburg et al., 1997). Also, unless the first intercourse is also the start of a mutually monogynous relationship, early age at first sexual intercourse is associated with a long period of exposure to sexual activity, a higher propensity to accumulate sexual partners, and increased chances of contracting STIs (Dixon-Muller and Wasserheit, 1990 and White et al., 2000). Wealth index of the respondents may have impact on the number of sex partners that they have and also their rate of condom use. The level of education may influence perception of HIV risk and sexual behaviour but the evidence is rather conflicting. Caraël (1995) found increased casual sexual activity among those with higher schooling but Meekers (1994) found that the association disappears when age is controlled for.

Individuals may perceive their risk of getting HIV/AIDS to be high or low depending on their previous sexual behaviour or that of their partners. A high perception of risk might lead to a modification of sexual behaviour, for example refusal to have sexual intercourse with a partner. Knowledge of AIDS has increased remarkably over the years and is almost universal in most sub-Saharan African countries but the association between such knowledge and sexual behaviour is not straightforward (Akwara et al., 2003).



NB: The arrows with the dotted lines were not measured in the study.

Figure 1: Adapted conceptual framework for the study of sexual behaviour of middle-aged men in Nigeria.

2.5 Hypotheses

The validity of the following hypotheses will be tested:

2.4.1a. H_0: A higher perception of risk of HIV/AIDS is not associated with a decrease in current sexual activity.

2.4.1b. H_1: A higher perception of risk of HIV/AIDS is associated with a decrease in current sexual activity.

2.4.2a. H_0: The socio-economic variables are not significant determinants of likelihood of current sexual activity of middle-aged men.

2.4.2b. H_1: The socio-economic variables are significant determinants of likelihood of current sexual activity of middle-aged men.

2.4.3a. H_0: Increased knowledge of HIV/AIDS is not associated with reduction in sexual activity

2.4.3b. H_1: Increased knowledge of HIV/AIDS is associated with reduction in sexual activity

Chapter Three: Methodology

3.1 Introduction

This chapter discusses the study methodology, which includes data source, sampling design, study population, variables definition and measurement. Also, analytical framework for the study is included.

3.2 Source of Data

The data for this study is from the 2003 NDHS male dataset. NDHS was a nationally representative sample of 2346 men aged 15-59 in Nigeria. The survey was originally designed to obtain information on key population and health indicators. Specifically, it was aimed at providing current and reliable data on fertility and family planning behaviour, knowledge and attitudes towards HIV/AIDS, etc. It was conducted with the technical support of Macro International Incorporated (NDHS, 2003).

The population covered by the 2003 NDHS is defined as universe of all women and men aged 14-59 and 15-59 years respectively in Nigeria. In the survey, a probability sample of households was selected and all women aged 15-49 identified in the households were interviewed. In addition, in a sub sample of one-third of the households selected for the survey, all men aged 15-59 were interviewed. The sampling frame was the list of 212,080 enumeration areas (EAs) developed for the 1991 Nigeria Population Census. The EAs were generated by dividing Nigeria into 36 states and the capital territory -Abuja. Each state was subdivided into local government areas (LGAs) and each LGA was divided into localities and each locality into EAs. The EAs are grouped by states, by LGAs within a state, and by localities within a LGA, stratified separately by urban and rural areas.

The sample was selected using a stratified, two-stage cluster design. A total of 365 clusters were selected, 165 in urban and 200 in rural areas. In Nigeria, rural area is defined as a locality whose population is less than 20,000 people while urban area consists of 20,000 and above. Cluster in this context is defined as one or more EAs from the 1991 census frame. A minimum requirement of 50 households per cluster was imposed on the design.

For this study, the population consists of Nigerian men aged 40-59 years who were interviewed during the 2003 NDHS. Out of 2346 men aged 15-59 years who completed the interviews, for this study, only those who belong to age 40-59 years category were selected. This gives a total of 633 middle-aged men selected for this study.

Three questionnaires were used for the 2003 NDHS namely: the Household questionnaire, the Women's questionnaire, and the Men's questionnaire. For this study, the Men's questionnaire was adopted since it provides relevant data on the sexual behaviour of middle-aged men in the country. Specifically, it provides relevant information on background characteristics of the respondents (e.g. age, residence, region, ethnicity, education, religion etc.), sexual behaviour, knowledge of HIV/AIDS and use of condom by the men. Hence, questions that were needed to measure the variables of interests were extracted from the 2003 NDHS Men's questionnaire.

3.3 **Data Analysis**

In this study, the definitions of the variables of interest categorised as dependent and independent are given below. In order to achieve the research objectives, the analyses were done at three levels (namely univariate, bivariate and multivariate) with the aid of the software program called SAS Enterprise Guide 3. The program is a point-and-click interface to the main SAS program. It allows access, manipulation and analysis of data. It also allows the execution of SAS code. It generates results in tabular and graphical formats (Linda, 2003).

3.3.1 **Variables − Definition and Measurement**

3.3.1.1 **Dependent Variables**

Sexual behaviour is the dependent variable and measured by three variables: current sexual activity, extramarital partnership and condom use as shown in Table 3.1. The variable *current sexual activity* was derived from variable *time since last intercourse*, which was also derived from one of the questions asked in the 2003 NDHS (i.e. "When was the last time you had sexual intercourse with a woman?"). The variable was recoded into two categories as shown in Table 3.1. This was done by categorising those who indicated they had sexual intercourse within the last 4 weeks (before the interview) as being sexually *active*, while those who signified that they had intercourse outside this period were categorised as *inactive*. *Extramarital partnership* was constructed from the question: "Have you had sex with any other woman in the last 12 months?" The variable was categorised into *yes* and *no*. This is based on the respondents' answers to the question. The variable *condom use* was derived from the following question: "The last time you had sexual intercourse with a woman, did you use a condom?" As shown in Table 3.1, it has two categories namely *yes* and *no* based on their responses to the questions.

3.3.1.2 **Independent Variables**

These constitute the individual, socio-economic and HIV/AIDS variables highlighted in the conceptual framework. The independent variables are as follows: age, place of residence, region, religion, ethnicity, age at first intercourse, marriage type, educational level, knowledge and perception of risk of HIV/AIDS and wealth index of the respondents. These variables are presumed to be important in predicting the sexual behaviour of Nigerian middle-aged men.

Table 3.1: Variables by Categories and Codes

Dependent Variables		
Variables	**Categories**	**Codes**
Current Sexual Activity	Active	1
	Inactive	2
Extramarital Partnersh ip	Yes	1
	No	2
Condom Use	Yes	1
	No	2
Independent Variables		
Background Characteristics		
Age	Continuous	
Place of Residence	Urban	1
	Rural	2
Region	North	1
	South	2
Ethnicity	Hausa-Fulani	1
	Yoruba	2
	Igbo	3
	Others*	4
Religion	Christianity	1
	Islam	2
	Traditional/Others	3
Socio-economic Characteristics		
Age at first intercourse	Under 20 years	1
	20- 24	2
	25 & above	3
Marriage Type	Monogyny	1
	Polygyny	2
Wealth Index	Poor	1
	Middle	2
	Rich	3
Educational Level	No Education	1
	Primary	2
	Secondary	3
	Higher	4
HIV/AIDS Variables		
Knowledge of HIV/AIDS	No	1
	Yes	2
Risk Perception of HIV/AIDS	Have risk	1
	No risk at all	2
	Don't know/unsure	3

* - Conglomeration of ethnic groups in Nigeria that does constitute at least 10% of Nigerian population.

All the independent variables (as shown in Table 3.1) are all depicted by the conceptual framework (i.e. figure 1). Age is a continuous variable and it ranges from 40-59 years, which were derived by the question: "How old were you at your last birthday?" In order to ease analysis, all the categorical variables were recoded except *place of residence*. It is noteworthy that straight forward questions were asked to derive virtually all the categorical variables e.g. What is your ethnic group? What is your religion? *Region* originally has six categories namely North-Central, North-East, North-West, South-East, South-South and South-West. However, the first three categories were merged to form North. Similarly, the last three categories (namely South-East, South-South and South-West) were merged to form South. Originally, *ethnicity* has more than 50 response levels with regards to the answers the respondents gave to the question: "What is your ethnic group?" It was reduced to three levels by retaining the groups that constituted at least 10% of the sample (i.e. Hausa-Fulani, Yoruba and Igbo) and categorising other groups with less than 10% as *others*. *Religion* was also recoded. All the indicated Christian denominations were merged to form Christianity while nothing was done to Islam. Traditional religion was merged with other religions to form *traditional/others.*

Age at first intercourse originated from the question: "How old were you when you first had sexual intercourse with a woman (if ever)?" Initially, it has three categories namely continuous/numerical category (this ranges from 8-40 years), *not had intercourse* and *at first union*. A*t first union* was merged with the continuous category with the aid of variable *age at first marriage.* That is, based on information on age *at first marriage,* category *at first union* was redistributed to the continuous category. However, the category − *not had intercourse* was removed simply because its size constituted less than 0.05% of the sample size. For *marriage type,* no direct question was asked in the 2003 NDHS questionnaire. Thus, the question: "Do you have one wife or more than one wife?" was used to derive this variable. The respondents who

indicated that they have one wife are categorised as those practising *monogyny* while those with more than one wife are categorised as practising *polygyny***.** The variable wealth index was constructed using household asset data and principal components analysis (NDHS, 2003). Asset information was collected in the 2003 NDHS Household questionnaire and it includes information on ownership of assets (e.g. radio, television, fan etc.) and dwelling characteristics (e.g. source of drinking water, type of sanitation facilities etc.) of the respondents. Each asset was assigned a weight (factor score) generated through principal component analysis, and the resulting asset scores were standardized in relation to a standard normal distribution with a mean of zero and standard deviation of one). Each household was then assigned a score for each asset, and the scores were summed for each household; individuals were ranked according to the total score of the household in which they resided. The sample was then divided into quintiles from one (lowest) to five (highest) (NDHS, 2003). In order words, the variable − wealth index initially had five categories namely: *poorest, poorer, middle, richer* and *richest*. The category *middle* was retained; *poor and poorer* were merged to form *poor* while *richer and richest* were merged to form *rich*.

"Have you ever heard of an illness called AIDS?" This was the question used to derive variable *Knowledge of AIDS.* It has two categories i.e. *yes* and *no*. The question: "Do you think your chances of getting AIDS are small, moderate, great, or no risk at all?" was used to derive *Risk Perception of HIV/AIDS*. The categories or response levels of this variable were collapsed from five to three. That is, *small, moderate* and *great* were merged to form *have risk* while the remaining two response levels i.e. *no risk at all* and *don't know/unsure* were retained.

3.3.1.3 **Univariate Analysis**

This was performed to provide the summary of the respondents' socio-economic characteristics, knowledge and risk perception of HIV/AIDS and sexual behaviour indicators. The results are

presented in this report in tabular form showing the frequency and percentage distribution of the data.

3.3.1.4 **Bivariate Analysis**

This was conducted to investigate whether there is association between the independent and the dependent variables. The statistical technique used was Chi-square statistic. Specifically, the analysis was performed to test the validity of some of the hypotheses stated in section 2.4. Thus, the existence of association between row and column variables within the contingency tables was investigated. Cross tabulations were performed to demonstrate the relationship of background and socio-economic characteristics, knowledge and risk perception of HIV/AIDS with sexual behaviour indicators. The results are presented in tabular form in section 4.2.

3.3.1.5 **Multivariate Analysis**

Binary logistic regression was adopted because virtually all the dependent variables have two categories. The relationship between the binary dependent variables and the independent variables were modelled. The logistic regression model used the explanatory or independent variables to predict the probability that the dependent or response variable takes on a given value. That is, the response variable takes one of the two binary values or codes in the models. The generated estimates were fitted into the logistic regression models. For a binary response variable y, the general binary logistic regression model is denoted by:

$$\ln\left\{\frac{P_i}{1-p_i}\right\} = \alpha + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_k x_{ki}$$

Where:

$\frac{P_i}{1-p_i}$ is the odds ratio

i =1,..., n

P_i represents the probability of occurrence of the dependent variable

α represents the intercept;

$x_{1i,}\ x_{2i}$ and x_{ki} represent the independent variables

$\beta_1,\ldots,\beta_k$ represent the slopes of the variables $x_1,...,x_{ki}$ respectively.

3.3.1.6 **Limitation of Study**

The NDHS dataset has some limitations. There were cases of non-response and possibility of reporting bias. This may not be unconnected with the sensitivity of the topic, which may prevent some of the respondents from supplying accurate answers to the questions asked. This may result in the overestimation or underestimation of the sexual behaviour of the respondents. Also, there were cases of missing data on variables of interest.

Chapt er Four: Profile of Respondents

4.1 Univariate Analysis

The tables below contains the results of the univariate analysis of NDHS 2003 dataset for men aged 40-59 years with regards to their background characteristics, socio-economic characteristics, knowledge and perception of HIV/AIDS and sexual behaviour indicators

4.1.1 Sexual Behavioural Characteristics of Middle-aged Men

As shown in Table 4.1, seven out of every 10 respondents (71.2%) indicated that they were sexually active (as at the time of the survey). Large proportion of the respondents (88.5%) reported no extramarital relationship. Similarly, almost all the men (95.7%) reported non use of condom the last time they had sex.

4.1.2 Individual Characteristics of Middle-aged Men

The average age of the respondents is 47.9 years, with the youngest and the oldest being 40 and 59 years respectively. A large proportion of the respondents sampled reside in the rural area compared with few that are living in the urban area. In fact, more than six out of every 10 respondents (61.4%) are rural dwellers while close to four out of every 10 (38.6%) are urban dwellers. These characteristics are typical of a developing country such as Nigeria. A high proportion of middle aged men from the North (61.8%) reside in rural area compared to those from the South (38.2%). High proportion of the respondents sampled for this study belong to the ethnic group −Hausa-Fulani (32.9%), followed by Igbo (16.5%) and Yoruba (12.8%) while almost four out of every 10 of them (37.8%) belong to ‘others’ group. On religion, more than half of the respondents (52.0%) are followers of Islam, over two-fifth of them are Christians (44.4%) while less than one-tenth (3.6%) are into traditional/other religions.

Table 4.1: Descriptive Statistics of Middle-aged Men in Nigeria: NDHS, 2003

Variables	Frequency	Percent (%)
Dependent Variables		
Current Sexual Activity		
Active	443	71.2
Inactive	179	28.8
Total	622*	100.0
Extramarital Partnership		
Yes	72	11.5
No	552	88.5
Total	624*	100.0
Condom Use		
Yes	25	4.3
No	554	95.7
Total	579*	100.0
Independent Variables		
Age	Mean = 47.9	
Place of Residence		
Urban	244	38.6
Rural	389	61.4
Total	633	100.0
Region		
North	391	61.8
South	242	38.2
Total	633	100.0
Ethnicity		
Hausa-Fulani	208	32.9
Igbo	104	16.5
Yoruba	81	12.8
Others	239	37.8
Total	632*	100.0
Religion		
Christianity	281	44.4
Islam	329	52.0
Traditional/others	23	3.6
Total	633	100.0
Age at first Intercourse	Mean=22.1	
Marriage Type		
Monogyny	403	69.7
Polygyny	175	30.3
Total	578*	100.0
Wealth Index		
Poor	268	42.3
Middle	114	18.0
Rich	251	39.7
Total	633	100.0
Educational Level		
No Education	256	40.5
Primary	187	29.5
Secondary	111	17.5
Higher	79	12.5
Total	633	100.0
Knowledge of AIDS		
No	11	1.7
Yes	622	98.3
Total	633	100.0
Risk Perception of HIV/AIDS		
Have risk	173	27.8
No risk at all	373	60.0
Don't know/unsure	76	12.2
Total	622*	100.0

* − There are missing cases.

4.1.3 Socioeconomic Characteristics of Middle-aged Men

It is shown that the average age at first sexual intercourse of men aged 40-59 years is 22.1 years. Large proportion of the respondents (69.7%) is (as at the time of the interview) in monogynous type of marriage while less than one-third of them (30.3%) are into polygyny. A little above two-fifth of the respondents (42.3%) are poor, almost one-fifth (18.0%) are in the 'middle' category while approximately two-fifth (39.65%) of them indicated that they are rich. Furthermore, large proportion of the respondents (40.5%) had no education. Close to one-third of them (29.5%) possess primary education while those with secondary and higher education constitute 17.5% and 12.5% respectively of the sample.

4.1.4 HIV/AIDS − Knowledge and perception

Almost all the men (98.3%) selected for this study have knowledge of AIDS. Six out of every 10 of the respondents (60.0%) do not perceive any risk at all of contracting HIV/AIDS compared to nearly three out of 10 of them (27.8%) that signified that they have risk. Moreover, just little over one-tenth (12.2%) of them said that they did not know or were unsure of their risk perception of HIV/AIDS.

4.2 Bivariate Analysis

Further analysis was conducted to examine the relationship between the respondents' socio-economic characteristics, HIV/AIDS variables and sexual behaviour indicators. Table 4.2 shows that there is no significant association between place of residence and all the sexual behaviour indicators. Nevertheless, the proportion of the respondents who are rural dwellers and are sexually active is 44.53% while that of the urban dwellers is 26.69%. In addition, a low proportion of the respondents residing in both the rural (7.05%) and urban (4.49%) areas do have extramarital partners. Generally, condom use is very low as less than one-tenth of the rural (2.59%) and urban (1.73%) dwellers indicated that they used it during their last intercourse.

Table 4.2: Selected Background Characteristics of Middle-aged men by their Sexual Behaviour : NDHS, 2003.

Characteristics	**% Sexually Active** (N=443)	**% Having Extramarital Partners** (N=72)	**% Using Condom** (N=25)
Residence			
Urban	26.69	4.49	1.73
Rural	44.53	7.05	2.59
p-values=	0.4422	0.9368	0.8616
Region			
North	43.41	5.61	2.07
South	27.81	5.93	2.25
p-values=	0.8712	0.0008	0.0398
Ethnicity			
Hausa-Fulani	23.35	2.25	0.35
Igbo	11.43	1.28	0.86
Yoruba	10.14	3.05	1.55
Others*	26.25	4.98	1.55
p-values=	0.5832	0.0005	0.0003
Religion			
Christianity	26.53	4.33	1.38
Islam	42.12	6.41	2.59
Traditional./Others	2.57	0.80	0.35
p-values=	0.0001	0.1331	0.2510

*- Conglomeration of ethnic groups in Nigeria that does constitute at least 10% of Nigerian population.

There is no variation in current sexual activity of middle-aged men in Nigeria (p=0.8712). However, the percentage of middle aged men from the north who are sexually active (43.41%) is significantly higher compared to that found among the same group of men from the south (27.81%). Region is significantly associated with extramarital partnership and condom use (p=0.0008).

Table 4.2 shows that there is no significant association between ethnicity and current sexual activity (p=0.5832). The table shows that the ethnic groups categorised as “others” (26.25%) and Hausa-Fulani (23.35%) constitute the highest proportion of sexually active middle-aged men followed by Igbo (11.43%) and Yoruba (10.14%). Ethnicity is significantly associated with extramarital partnership and condom use. A high percentage of respondents from the sexually

active ethnic groups are less likely to use condom. For instance, the Hausa-Fulani constitute the greatest proportion of sexually active men (23.35%) (apart from “others”) but it is the one with the lowest proportion (0.35%) of condom users. This may not be unconnected with the fact that the men from this ethnic group constitute the highest proportion of respondents (30.50%) with no extramarital partners.

It is also shown that there is significant association between religion and current sexual activity (p=0.0001). Adherents of Islam (42.12%) are the most sexually active followed by the Christians (26.53%) and Traditionalists/others (2.57%). Also, the Muslims (6.41%) constitute the highest proportion of respondents with extramarital partners when compared with the Christians (4.33%) and the Traditionalist/others (0.80%). However, these differences (in percentages of middle aged men who had extramarital partners) are not statistically significantly (p=0.1331). Moreover, they are less likely to use condom during intercourse. In fact, more than half of them indicated that they did not use condom during their last intercourse.

Table 4.3 shows that there is no significant association between marriage type and current sexual activity and extramarital partnership. However, there is significant association between marriage type and condom use. Men in monogynous relationships (50.53%) are more sexually active compared to those in polygynous relationships. This may be linked to the fact that the monogynists (7.71%) engage more in extramarital partnership than the polygynists (2.80%). This explanation provides an insight into the reason why rate of condom use among them (3.67%) is higher than that of the polygynists (0.18%).

Table 4.3: Selected Socio-economic Characteristics and Sexual Behaviour of Middle-aged Men: NDHS, 2003.

Characteristics	**% Sexually Active** (N=443)	**% Having Extramarital Partnership** (N=72)	**% Using Condom** (N=25)
Marriage Type			
Monogyny	50.53	7.71	3.67
Polygyny	21.48	2.80	0.18
p-values=	0.8176	0.4984	0.0077
Wealth Index			
Poor	32.32	5.13	2.07
Middle	12.86	2.24	0.52
Rich	26.05	4.17	1.73
p-values=	0.0311	0.8287	0.6675
Education			
No Education	32.32	4.49	1.73
Primary	17.20	2.56	1.38
Secondary	12.38	2.40	0.69
Higher	9.32	2.08	0.52
p-values=	0.0001	0.2657	0.9739

Table 4.3 also shows that wealth is significantly associated with current sexual activity but it is neither significantly associated with extramarital partnership nor condom use. The poor middle-aged men are more sexually active and are more likely to engage in extramarital affairs and constitute large percentage of condom users compared to those in the middle and rich categories.

Education is associated with current sexual activity but it is neither associated with extramarital partnership nor condom use. It could be deduced from the table that the higher the educational level the lower the proportion of respondents that are sexually active, in each category. For instance, the respondents with the highest level of education (tagged *higher*) constitute the lowest proportion of sexually active men (9.32%) while the respondent with the lowest level of education (labelled *no education*) constitute the highest proportion of sexually active men (32.32%). Similarly, the lower the level of education the higher the tendency of the respondents to have extramarital partners and constitute the largest percentage of condom users.

Table 4.4: Selected HIV/AIDS Variables and Sexual Behaviour of Middle-aged Men: NDHS, 2003.

HIV/AIDS Variables	**% Sexually Active** (N=179)	**% Having Extramarital Partners** (N=72)	**% Using Condom** (N=25)
Knowledge of HIV/AIDS			
No	0.96	0.64	0.17
Yes	70.26	10.90	4.15
p-values=	0.2177	0.0045	0.3725
Risk Perception of HIV/AIDS			
Have risk	20.29	4.08	1.76
No risk at all	42.39	5.55	2.29
Don't know	8.51	1.96	0.35
p-values=	0.8982	0.0845	0.3861

Table 4.4 shows that the HIV/AIDS variables (i.e. knowledge and risk perception of HIV/AIDS) are not significantly associated with two out of the three sexual behaviour indicators that is, current sexual activity and condom use. It is shown that there is significant association between knowledge and extramarital partnership (p=0.0045). It could be seen that large proportion of middle-aged men with knowledge of HIV/AIDS does not engage in extramarital affairs, hence have low condom use. This is because they are most likely to stick to one partner.

Perception of risk of HIV/AIDS is neither significantly associated with current sexual activity nor condom use. The respondents who do not perceive any risk of being infected with HIV/AIDS are more sexually active and more likely to engage in extramarital affairs and less likely to use condom compared with those that *have risk* perception. This is very risky.

Chapter Five: Determinants of Sexual Behaviour of Middle-aged Men

5.1 Introduction

In order to investigate factors that influence the sexual behaviour of middle-aged men in Nigeria, multivariate analysis was carried out. This also provides opportunity to test the hypotheses for this study.

The analysis produced five set of binary logistic regression models. The first set of models comprises three models fitted by running the individual variables against each of the three sexual behaviour indicators. Similarly, the second and the third set consist of three models each fitted by running the socio-economic and HIV/AIDS variables against each of the sexual behaviour indicators respectively. The fourth set of models was derived by running all the independent variables against each dependent variable. It is noteworthy that a model out of the fourth set of models (i.e. independent variables versus condom use) used extramarital partnership as part of the independent variables used. This is because of the relevance of extramarital partnership in predicting condom use among middle-aged men. Altogether, a total of twelve models were fitted. However, when model selection method was employed ten out of the 12 models fitted have significant predictors.

Stepwise backward elimination method was used to generate the significant determinants of the respondents' sexual behaviour. This method started with a full model and eliminated (the insignificant) variables one by one. That is, at each step, the variable with no contribution to the model was deleted. The results of the analysis are presented in Table 5.1 and Appendices 1 to 4 .

Table 5.1: Adjusted Odds Ratios (and 95% Confidence Intervals) from Logistic Regression Analyses Assessing Relationship between Selected Characteristics and Sexual Behaviour of Middle-aged Men: DHS,2003.

No.	Variable	Adjusted Odds Ratio	95% Confidence Interval	p-value
Individual factors associated with Current Sexual Activity (Model 1a − adjusted)				
1	**Religion**			
	Christianity	RC	−	−
	Islam	2.865	1.978 −4.150	<0.001*
	Traditional/others	2.166	0.771 −6.083	0.142
Individual factors associated with Extramarital Partnership (Model 1b − adjusted)				
1	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	1.348	0.505 −3.598	0.552
	Yoruba	5.456	2.313 −12.870	0.0001*
	Others	2.350	2.313 −12.870	0.022*
Individual factors associated with Condom Use (Model 1c − adjusted)				
1	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	6.333	1.202 −33.355	0.029*
	Yoruba	13.257	2.587 −67.940	0.002*
	Others	3.800	0.797 −18.121	0.094
Socio-economic factors associated with Current Sexual Activity (Model 2a − adjusted)				
1	**Educational Level**			
	No Education	RC	−	−
	Primary	0.359	0.228−0.566	<0.0001*
	Secondary	0.604	0.350−1.041	0.070
	Higher	0.701	0.375−1.311	0.266
Socio-economic factors associated with Extramarital Partnership (Model 2b − adjusted)				
1	**Age at first intercourse**	1.047	1.000−1.096	0.048*
Socio economic factors associated with Condom Use (Model 2c − adjusted)				
1	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.105	0.014−0.787	0.028*
HIV/AIDS factors associated with Current Sexual Activity (Model 3a− adjusted) -No Significant Predictor				
HIV/AIDS-related factors associated with Extramarital Partnership (Model 3b − adjusted)				
1	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	0.190	0.044 −0.818	0.026*
HIV/AIDS factors associated with Condom Use (Model 3c − adjusted) No Significant Predictor				
Independent Variables versus Current Sexuality Activity (4a − adjusted)*				
1	**Religion**			
	Christianity	RC	−	−
	Islam	3.230	2.159−4.830	<.0001*
	Traditional/others	2.634	0.853−8.136	0.092
2	**Age at first intercourse**	0.963	0.930−0.998	0.038*
Independent Variables versus Extramarital Partnership (4b − adjusted)				
1	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	1.246	0.459−3.386	0.6660
	Yoruba	5.882	2.471−14.002	<0.0001*
	Others	2.357	1.122−4.954	0.024*
2	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	0.129	0.029−0.579	0.008*
1	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.108	0.014−0.819	0.031*

RC – Reference Category; * − Significant Association (p-value <0.05)

5.2 **Determinants of Current Sexual Activity**

When individual factors were associated with current sexual activity, (out of the five variables considered) religion emerged as the only determinant of current sexual activity even after model selection method was employed. Before adjustment, the odds ratio (OR) for Muslim respondents being currently sexually active was 2.82 (95% confidence interval [CI]: 1.94−4.1); after adjustment for a range of possible confounders, the adjusted OR (AOR) was 2.87 (95% CI: 1.98−4.15). Thus, the odds ratios (adjusted and unadjusted) indicate that middle-aged men in Nigeria who are Muslims are more likely to engage in sexual activity compared to the Christians.

Similarly, when the socio-economic factors were associated with current sexual activity, only one factor (education) was detected to be the predictor of current sexual activity. The respondents with primary education are less likely to engage in sexual activity compared to those with no education neither before nor after adjustment (OR=0.39 [95% CI: 0.24−0.63] and AOR=0.36 [95% CI: 0.23−0.57] respectively).

It is shown that none of the HIV/AIDS-related factors (neither knowledge nor risk perception) was found to be associated with current sexual activity even after adjustment. That is, a higher perception of risk of HIV/AIDS is not associated with a decrease in current sexual activity and that increased knowledge of HIV/AIDS is not associated with reduction in sexual activity.

Before adjustment, when analysis was conducted on all independent variables versus current sexual activity; religion, age at first intercourse and wealth appeared to be the predictors of current sexual activity. However, after adjustment only religion and age at first intercourse emerged as the significant predictors of current sexual activity. Muslims are more likely to be sexually active compared to the Christians before (OR=3.27, 95% CI=1.98−5.39) and after

(AOR=3.23, 95% CI=2.16−4.83) adjustment. Furthermore, the higher the age at first intercourse, the lower the rate of sexual activity (AOR=0.96 [95% CI=0.93−1.00]).

5.3 **Determinants of Extramarital Partnership**

When individual factors were run against extramarital partnership, ethnicity emerged as the only predictor of extramarital partnership. Before and after adjustment, the Yorubas are more likely to engage in extramarital partnership compared to the Hausa-Fulanis (OR=1.12 [95% CI=1.54−12.22] and AOR=5.46 [95% CI=2.31−12.87] respectively). Similarly, members of other ethnic groups are also more likely to engage in extramarital partnership compared to the Hausa-Fulanis (AOR=3.8 [95% CI=0.80 −18.12]).

Age at first intercourse is also a significant predictor of extramarital partnership (p=0.048). The higher the age at first intercourse, the higher the likelihood of the respondents to engage in extramarital partnership (AOR=1.05 [95% CI=1.00−1.10]).

When HIV/AIDS-related factors were associated with extramarital partnership, knowledge of AIDS emerged as the significant factors. Before adjustment, the OR for extramarital partnership among respondents with knowledge of AIDS was 0.20 (95% CI: 0.045−0.845); after adjustment, the AOR was 0.19 (95% CI: 0.04 −0.82). These signify that the respondents with knowledge of AIDS are less likely to engage in extramarital partnerships compared to those that do not have knowledge.

Out of all the independent variables run against the extramarital partnership, only ethnicity and knowledge of AIDS came out as the only predictors of extramarital partnership. The AOR for extramarital partnership among the Yorubas and ‘others’ ethnic group are 5.88 (95% CI: 2.47−14.00) and 2.36 (95% CI: 1.12−4.95) respectively. The results indicate that extra marital partnership is more likely among the Yorubas and ‘others’ ethnic group compared to Hausa-

Fulanis. Also, the AOR for extramarital partnership among the respondents with knowledge of AIDS is 0.13 (95% CI: 0.03−0.58) indicating that extramarital partnership is less likely among middle-aged men with knowledge of AIDS compared to those who do not have knowledge.

5.4 **Determinants of Condom Use**

Ethnicity emerged as the only significant predictor of condom use among middle-aged men in Nigeria when the individual factors were run against condom use. The Igbos (AOR=6.33, 95% CI=1.20−33.36) and the Yorubas (AOR=13.26, 95% CI=2.59−67.94) are more likely to use condom compared to the Hausa-Fulanis.

When socio-economic factors were associated with condom use, marriage type was discovered to be the only predictor of condom use among middle-aged men. The polygynists are less likely to use condom compared to the monogynists (AOR=0.11, 95% CI=0.01−0.79).

None of the HIV/AIDS-related factors could predict condom use among middle-aged men, when they are run against condom use. Marriage type and extramarital partnership were the only significant predictors of condom use among the respondents when analysis was done on all independent variables (plus extramarital partnership) versus condom use. The polygynists (AOR=0.12, 95% CI=0.014−0.82) are less likely to use condoms compared to the monogynists. The reason may be that they (the polygynists) already have many wives, whom they are familiar with and perhaps have born them children. Thus this may not warrant the use of condom unlike the monogynists, who are mostly into extramarital sexual relationship and very likely with strangers. The respondents who are not into extramarital partnership are less likely to use condoms (AOR=0.227, 95% CI=0.086−0.597) compared with those in extramarital partnership. The reason being that extramarital partnership is asexual risk behaviour thus there is the need for condom use to avoid STIs.

Chapter Six: Discussion, Conclusion and Recommendations

5.1 Discussion

Based on the analysis of the year 2003 NDHS male dataset, this study has clearly demonstrated that a high percentage (71.2%) of men aged 40-59 years in Nigeria are sexually active. The study also reveals that a considerable proportion of the respondents are into extramarital (11.5%) and polygynous (30.3%) relationships (i.e. have multiple sex partners) while pologyny is recognised in the country extramarital partnership are recognised the latter are not. Age disparity in sexual relationships could not be investigated due to unavailability of relevant variables in the 2003 NDHS male dataset to measure this. It is startling that a high proportion of middle-aged men (88.5%) engaged in risky sexual behaviour. That is, having sexual intercourse without the use of condoms in spite of the fact that virtually all of them (98.3%) have knowledge of the dreaded infection ―HIV/AIDS. These results are consistent with the findings of Lawoyin et al.,2000, Messersmith et all.,2000, Isiugo-Abanihe, 1998, Ogbuagu and Charles, 1993 who in their respective studies discovered that consistent condom use is largely low or absent among men despite almost their universal knowledge and recognition that regular condom use is a major means of preventing HIV/AIDS, ostensibly because they practise safe sex or attached to a partner.

One of the objectives of this study is to examine the patterns of sexual behaviour of middle-aged men. Thus, it was discovered that middle-aged men in Nigeria are highly sexually active and do engage in multiple sex partnership and have low rate of condom use. A high proportion of them do not perceive themselves to be at risk of contracting HIV/AIDS.

The second objective of this objective is to investigate factors that influence the middle-aged men's sexual behaviour, which was measured by current sexual activity, extramarital partnership

and condom use. After the analyses, religion, age at first intercourse and education emerged as the predictors of current sexual activity; ethnicity, age at first intercourse and knowledge of AIDS came out as the predictors of extramarital partnership while ethnicity, marriage type and extramarital partnership were the predictors of condom use. In summary, religion, education, age at first intercourse, ethnicity, marriage type, knowledge of AIDS and extramarital partnership are the predictors of sexual behaviour middle-aged men in Nigeria.

According to this study, religious affiliation is a determinant of sexual behaviour of middle aged men in Nigeria. The results show that Muslims showed more likelihood to have had sexual intercourse in the four weeks before the survey compared to the Christians. This may be connected with the fact that Islam permits polygyny (Gray, 2004). Thus, this provides them with many sex partners to have intercourse with. This contradicts earlier finding, which found that there is a strong relationship between religiosity and sexual behaviour among university undergraduates in Nigeria (Odimegwu, 2005)

Education contributes significantly to sexual behaviour of middle-aged men in Nigeria. The respondents with the minimum level of education were less likely to have engaged in sexual intercourse four weeks before the time of the survey compared with the illiterates. The possible explanation for this scenario is that the educated (unlike the illiterates) have access to good employment, good income and consequently access to means of entertainment (e.g. television). Thus, these means of entertainment may distract their attention from current sexual intercourse at the time of the survey.

Age at first intercourse is also a predictor of sexual behaviour (specifically − current sexual

activity and extramarital partnership) of middle-aged men in Nigeria. Dixon-Muller and Wasserheit (1990) provide possible explanation for these findings noting that early age at first sexual intercourse is associated with a long period of exposure to sexual activity and higher propensity to accumulate sex partners.

Ethnicity could predict extramarital partnership and condom use among middle-aged men. The Yorubas are likely to engage in extramarital partnership compared to other ethnic groups. This finding is consistent with that of Orubuloye et al. (1991), who indicated that extramarital partnership is common among the Yorubas. He says this is partly due to the prohibition of sexual intercourse during lactation by the Yoruba custom. Also, the Yorubas are more likely to use condoms. This may be as a result of their high extramarital partnership.

Marriage type determines condom use among the respondents. Specifically, the polygynists are less likely to use condom compared to the monogynists. This is understandable because the percentage of monogynists who engage in extramarital partnership is greater than that of the polygynists (Table 4.3).

Knowledge of HIV/AIDS is a determinant of sexual behaviour of middle-aged men in Nigeria. The respondents with knowledge of AIDS are less likely to engage in extramarital partnerships compared to those who are ignorant of the infection. Also, extramarital partnership is significantly associated with condom use. Men who are not into extramarital partnership are less likely to use condoms. This is expected because engaging extramarital partnership is risky and thus warrants the use of condoms.

The study has succeeded in revealing some of the background and socio-economic characteristics, HIV/AIDS variables (as captured by the conceptual framework) that have significant impact on the sexual behaviour of middle-aged men in Nigeria. However, this study

has been limited by the absence of large sample size and qualitative information that could provide more insight into the sexual behaviour of these people. Thus, there is the need for future study to incorporate qualitative method to study their sexual behaviour. There is also need to consider age factor in the study of sexual behaviour in Africa with a view to understanding age-specific dynamics because people at higher age groups are sexually active.

5.2 **Conclusion**

Appropriate research methods and statistical techniques were employed in achieving the objectives of this study i.e. to examine and investigate the pattern and the determinants of sexual behaviour of men aged 40-59 years in Nigeria respectively.

In viewing the sexual behavioural pattern of these men vis-à-vis the risk of HIV/AIDS, the study reveals the rate of sexual activity among them is high. It is characterised by very low rate of condom use during intercourse in spite of the fact that almost all of them are aware of HIV/AIDS. Furthermore, a significant proportion of them do not perceive themselves to be at the risk of contracting the infection. This may explain the low use of condom.

In investigating the determinants of sexual behaviour of middle-aged men in Nigeria, this study took into consideration nearly all the factors (i.e. respondents' background characteristics, socio-economic characteristics, knowledge and perception of HIV/AIDS) that are perceived to be the determinants of sexual behaviour of middle-aged men for statistical testing and analysis. Out of all the considered factors, religion, ethnicity, education, age at first sexual intercourse, marriage, extramarital partnership, knowledge of HIV/AIDS and marriage type emerged as the determinants of sexual behaviour of middle-aged men in Nigeria.

The sexual behaviour of middle-aged men in Nigeria follows the pattern described in the HBM. For instance, the adapted model shows that the individual, socio-economic and the HIV/AIDS variables can influence the sexual behaviour of Middle-aged men in Nigeria. Hence, this study confirms that as some of the factors listed under individual variables (i.e. ethnicity and religion), socio-economic variables (i.e. age at first sex, marriage type and education) and HIV/AIDS variables (knowledge of HIV/AIDS) were found to influence at least one of the sexual behaviour indicators indicated in the HBM. Thus, this model is useful for this study.

5.3 **Recommendations**

The results of this study have implications for policy formulation and programmes. In terms of policy, government should augment budgetary allocation to condom promotion and strengthen logistics geared towards its distribution at little or no cost. Since education, religion and ethnicity (and one of its close associate marriage type) are the predictors of sexual behaviour of middle-aged men in Nigeria, preventive interventions programmes therefore need to be educationally, religiously and culturally based.

Education seems to be an important intervention measure that could be used to control men's risky sexual behaviour. Thus, for significant reduction in rate of HIV infection rates to be achieved in Nigeria, relevant media should be used to enlighten men on consistent and correct use of condom. They also need to be educated on the risk of not remaining faithful to their partners. In addition, they should be enjoined to play responsible role in promoting the reproductive health behaviour of their spouses by shunning extra marital relationships.

With regards to culture, it is noteworthy that Nigeria has a mix of cultural practices and beliefs originating from the existence of 250 different ethnic groups. Thus, the diversity of culture should be taken into consideration in the implementation of HIV/AIDS preventive intervention

programmes for the different communities. A good example is communicating to the people about the danger of risky sexual behaviour through their respective local languages and leaders.

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Appendices

Appendix 1: Odds Ratios (and 95% Confidence Intervals) from Logistic Regression Analyses Assessing Relationship between Selected Individual factors (Background Characteristics) and Sexual Behaviour of Middle-aged Men: DHS,2003.

No.	Variable	Odds Ratio	95% Confidence Interval	p-value
Individual factors associated with Current Sexual Activity (Model 1a)				
1	**Age**	0.980	0.949 −1.013	0.229
2	**Place of Residence**			
	Urban	RC	−	−
	Rural	1.051	0.724 −1.527	0.792
3	**Region**			
	North	RC	−	−
	South	1.061	0.623 −1.807	0.827
4	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	0.973	0.473 −2.003	0.941
	Yoruba	1.585	0.738 −3.401	0.238
	Others	0.991	0.624 −1.574	0.970
5	**Religion**			
	Christianity	RC	−	−
	Islam	2.818	1.937 −4.100	<0.0001*
	Traditional/others	2.121	0.749 −6.007	0.157
Individual factors associated with Extramarital Partner (Model 1b)				
1	**Age**	0.963	0.916 −1.013	0.144
2	**Place of Residence**			
	Urban	RC	−	−
	Rural	0.989	0.551 −1.773	0.970
3	**Region**			
	North	RC	−	−
	South	1.378	0.675 −2.816	0.379
4	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	1.054	0.322 −3.444	0.931
	Yoruba	4.337	1.540 −12.218	0.006*
	Others	1.996	0.915 −4.356	0.083
5	**Religion**			
	Christianity	RC	−	−
	Islam	1.108	0.616 −1.994	0.733
	Traditional/others	2.163	0.632 −7.409	0.219
Individual factors associated with Condom Use (Model 1c)				
1	**Age**	1.051	0.976 −1.131	0.192
2	**Place of Residence**			
	Urban	RC	−	−
	Rural	0.831	0.325 −2.122	0.699
3	**Region**			
	North	RC	−	−
	South	0.394	0.121 1.284	0.122
4	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	13.747	1.980 −95.464	0.008*
	Yoruba	23.233	3.752 −143.854	0.001*
	Others	5.029	1.035 −24.430	0.045*
5	**Religion**			
	Christianity	RC	−	−
	Islam	1.821	0.663 −5.005	0.245
	Traditional/others	3.877	0.668 −22.515	0.131
RC – Reference Category; * − Significant Association (p-value=value <0.05)				

Appendix 2: Odds Ratios (and 95% Confidence Intervals) from Logistic Regression Analyses Assessing Relationship between Selected Socio-economic factors (characteristics) and Sexual Behaviour of Middle-aged Men: DHS,2003.

Socio-economic factors associated with Sexual Activity (Model 2a)				
No.	**Variable**	**Odds Ratio**	**95% Confidence Interval**	**p-value**
1	**Age at first Intercourse**	0.969	0.936−1.003	0.075
2	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.857	0.565−1.298	0.465
3	**Wealth Index**			
	Poor	RC	−	−
	Middle	0.766	0.446−1.315	0.333
	Rich	0.669	0.415−1.078	0.099
4	**Educational Level**			
	No Education	RC	−	−
	Primary	0.393	0.244−0.632	0.0001*
	Secondary	0.769	0.423−1.399	0.390
	Higher	0.835	0.420−1.660	0.607
Socio-economic factors associated with Extramarital Partner (Model 2b)				
1	**Age at first Intercourse**	1.050	1.001−1.102	0.045*
2	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.717	0.383−1.344	0.299
3	**Wealth Index**			
	Poor	RC	−	−
	Middle	0.861	0.408−1.819	0.696
	Rich	0.576	0.282−1.175	0.129
4	**Educational Level**			
	No Education	RC	−	−
	Primary	0.939	0.451−1.957	0.867
	Secondary	1.473	0.645−3.364	0.358
	Higher	2.696	1.110−6.549	0.029*
Socio-economic factors associated with Condom Use (Model 2c)				
1	**Age at first Intercourse**	1.029	0.947−1.117	0.500
2	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.102	0.014−0.771	0.027*
3	**Wealth Index**			
	Poor	RC	−	−
	Middle	0.550	0.146−2.068	0.377
	Rich	0.712	0.233−2.176	0.552
4	**Educational Level**			
	No Education	RC	−	−
	Primary	0.722	0.232−2.250	0.574
	Secondary	0.982	0.263−3.675	0.979
	Higher	0.958	0.174−5.277	0.961
RC – Reference Category; * − Significant Association (p-value=value <0.05)				

Appendix 3: Odds Ratios (and 95% Confidence Intervals) from Logistic Regression Analyses Assessing Relationship between Selected HIV/AIDS Variables and Sexual Behaviour of Middle-aged Men: DHS, 2003.

No.	Variable	Odds Ratio	95% Confidence Interval	p-value
HIV/AIDS Variables Associated with Current Sexual Activity (Model 3a)				
1	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	2.104	0.633 −6.991	0.225
2	**Risk Perception of AIDS**			
	Have risk	RC	−	−
	No risk at all	0.900	0.600 −1.349	0.610
	Don't know/unsure	0.931	0.506 −1.711	0.817
HIV/AIDS Variables Associated with Extramarital Partner (Model 3b)				
1	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	0.195	0.045 −0.845	0.029*
2	**Risk Perception of /AIDS**			
	Have risk	RC	−	−
	No risk at all	0.662	0.363 −1.206	0.177
	Don't know/unsure	1.028	0.442 −2.389	0.949
HIV/AIDS Variables Associated with Condom Use (Model 3c)				
1	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	0.297	0.034 −2.584	0.272
2	**Risk Perception of AIDS**			
	Have risk	RC	−	−
	No risk at all	0.437	0.173 −1.100	0.079
	Don't know/unsure	0.453	0.096 −2.131	0.316
RC – Reference Category; * − Significant Association (p-value=value <0.05)				

Appendix 4: Odds Ratios (and 95% Confidence Intervals) from Logistic Regression Analyses Assessing Relationship between Selected Characteristics and Sexual Behaviour of Middle-aged Men: DHS, 2003.

No.	Variable	Odds Ratio	95% Confidence Interval	p-value
Independent Variables versus Sexuality Activity (4a)				
1	**Age**	1.019	0.980−1.059	0.351
2	**Place of Residence**			
	Urban	RC	−	−
	Rural	0.803	0.495−1.303	0.375
3	**Region**			
	North	RC	−	−
	South	1.184	0.640−2.187	0.591
4	**Ethnicity**			
	Hausa/Fulani	RC	−	−
	Igbo	0.703	0.308−1.603	0.402
	Yoruba	1.445	0.583−3.584	0.427
	Others	1.078	0.648−1.792	0.774
5	**Religion**			
	Christianity	RC	−	−
	Islam	3.270	1.982−5.394	<0.0001*
	Traditional/others	2.291	0.699−7.509	0.171
6	**Age at first Intercourse**	0.955	0.920−0.991	0.016*
7	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.820	0.526−1.278	0.3812
8	**Wealth Index**			
	Poor	RC	−	−
	Middle	0.746	0.418−1.333	0.322
	Rich	0.522	0.291−0.938	0.030*
9	**Educational Level**			
	No Education	RC	−	−
	Primary	0.730	0.414−1.286	0.276
	Secondary	1.656	0.803−3.416	0.172
	Higher	1.696	0.773−3.721	0.188
10	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	2.535	0.582−11.042	0.216
11	**Risk Perception of AIDS**			
	Have risk	RC	−	−
	No risk at all	0.851	0.530−1.368	0.506
	Don't know/unsure	0.882	0.440−1.768	0.723
Independent Variables versus Extramarital Partner (4b)				
1	**Age**	0.969	0.917−1.023	0.248
2	**Place of Residence**			
	Urban	RC	−	−
	Rural	0.782	0.376−1.625	0.509

3	**Region**			
	North	RC	–	–
	South	2.007	0.898–4.487	0.090
4	**Ethnicity**			
	Hausa/Fulani	RC	–	–
	Igbo	0.603	0.164–2.216	0.446
	Yoruba	3.304	1.093–9.986	0.034*
	Others	1.583	0.684–3.661	0.283
5	**Religion**			
	Christianity	RC	–	–
	Islam	1.412	0.695–2.866	0.340
	Traditional/others	2.754	0.746–10.165	0.128
6	**Age at first Intercourse**	1.039	0.988–1.092	0.133
7	**Marriage Type**			
	Monogamy	RC	–	–
	Polygyny	0.702	0.361–1.367	0.298
8	**Wealth Index**			
	Poor	RC	–	–
	Middle	0.882	0.384–2.025	0.767
	Rich	0.541	0.220–1.335	0.183
9	**Educational Level**			
	No Education	RC	–	–
	Primary	1.169	0.493–2.775	0.723
	Secondary	1.645	0.611–4.428	0.325
	Higher	3.567	1.267–10.038	0.016*
10	**Knowledge of AIDS**			
	No	RC	–	–
	Yes	0.101	0.020 0.504	0.005*
11	**Risk Perception of AIDS**			
	Have risk	RC	–	–
	No risk at all	0.534	0.269–1.056	0.072
	Don't know/unsure	0.965	0.387–2.406	0.939
Independent Variables versus Condom Use (4c)				
1	**Age**	1.048	0.965–1.138	0.263
2	**Place of Residence**			
	Urban	RC	–	–
	Rural	0.690	0.197–2.416	0.561
3	**Region**			
	North	RC	–	–
	South	0.552	0.145–2.098	0.383
4	**Ethnicity**			
	Hausa/Fulani	RC	–	–
	Igbo	7.074	0.904–55.333	0.062
	Yoruba	11.919	1.715–82.823	0.012*
	Others	3.587	0.686–18.742	0.130

5	**Religion**			
	Christianity	RC	−	−
	Islam	1.744	0.489−6.219	0.391
	Traditional/others	3.285	0.496−21.750	0.218
6	**Age at first Intercourse**	1.006	0.923−1.096	0.897
7	**Marriage Type**			
	Monogamy	RC	−	−
	Polygyny	0.143	0.018−1.112	0.063
8	**Wealth Index**			
	Poor	RC	−	−
	Middle	0.646	0.143−2.918	0.570
	Rich	0.692	0.146−3.286	0.643
9	**Educational Level**			
	No Education	RC	−	−
	Primary	0.834	0.194−3.580	0.807
	Secondary	1.513	0.276−8.305	0.633
	Higher	1.194	0.152−9.348	0.866
10	**Knowledge of AIDS**			
	No	RC	−	−
	Yes	0.377	0.030−4.668	0.447
11	**Risk Perception of AIDS**			
	Have risk	RC	−	−
	No risk at all	0.565	0.186−1.714	0.313
	Don't know/unsure	0.616	0.112−3.389	0.578
12	**Extramarital Partnership**			
	Yes	RC	−	−
	No	0.308	0.106−0.896	0.031*
RC – Reference Category; * − Significant Association (p-value=value <0.05)				