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BEYOND RISK:

Understanding a Framework for Improving Adolescents' Sexual Health in Nigeria

By

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DECLARATION

I, Somefun Oluwaseyi Dolapo, declare that this thesis is my own original work. It is being submitted for the degree of Doctor of Philosophy in Demography and Population Studies of the University of the Witwatersrand, Johannesburg. To the best of my knowledge, it has not been submitted before in part or in full for any degree or examination at this or any other University.

……

……..day ……., 2019

DEDICATION

I dedicate the success of this work to the glory of God and to other students that could not complete their dissertation for one reason or the other.

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I have collected many debts during the years of writing this thesis. My largest debt is to my mother. I doubt it is possible to find such self-less and unconditional love on the surface of the earth. Huge thanks to her for the completion of this milestone!

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ABSTRACT

The determinants of risky sexual behaviours among youth have been widely debated in epidemiology, public health, demography and in other social sciences. A number of scholars such as Kabiru, Izugbara, and Beguy (2013); Okigbo, Kabiru, Mumah, Mojola, and Beguy (2015) and (Odimegwu & Somefun, 2017) argue that risky sexual behaviours among youth are influenced by risk factors at both individual and community levels. However, fewer studies have explored the prevalence and patterns of protective behaviours among youth nor have they adequately addressed the factors that contribute to protective sexual behaviours in the lives of adolescents. The question ***"Why do some youth engage in protective sexual behaviours in the same social environment while others who do not?"*** remains unanswered.

The purpose of this study is to understand protective sexual behaviours of young people aged 15-24 in Nigeria and the risk and protective factors associated with those behaviours. By protective sexual behaviours, I mean those behaviours that protect an individual from risk related to sexual activities. The behaviours considered in this study were; primary and recent abstinence, single sexual partnerships, condom use at last sex and HIV testing. The study was placed within the broad ecological framework and the risk and resilience framework in order to understand why youth engage in protective sexual behaviours in unfavourable environments and examine what can be learnt from these youth. The ecological framework argues that factors that affect protective sexual behaviours of young people interact at different levels – individual, family, community and society. The risk and resilience framework is based on evidence that both risk and protective factors could interact with in the life of an individual to result in protective outcomes. Specifically, I used a concurrent triangulation approach to examine the influence of protective and risk factors on protective sexual behaviours among youth in Nigeria, and to understand why some youth engage in protective behaviours in the face of extreme vulnerability; where extreme vulnerability could

be within intimate relationships, at parties or social gatherings and being alone with a friend.

I used three rounds of the Nigerian Demographic and Health Survey (2003, 2008 and 2013) to examine the patterns of protective sexual behaviours among youth aged 15-24 in Nigeria. The NDHS results from the quantitative analysis informed the purposive sampling of four study sites (Edo, Enugu, Kano and Osun State) representative of the three major ethnic groups and a control site in Nigeria where youth were sampled randomly for data collection. Focus groups (16 per state) and in-depth interviews (10 per state) stratified by place of residence and gender were used to develop themes concerned with resilience among youth. This resulted to a total of 64 FGD's and 80 IDIs. The third phase involved generating a questionnaire to deal with themes that could not be measured with the national dataset with a sample of 2, 339 youth in the four states.

Results from the DHS showed that the percentage of males delaying sex as at age15 increased from 57% in 2003 to 66% in 2013 but a slight increase was evident for females (32% vs 36%). This increase in abstinence was similar to increase in condom use at last sex and HIV testing among youth with evident gender differentials. Findings from the FGD's and IDIs revealed that fear of early fatherhood, pregnancy, experience of coerced sex and parental monitoring were individual and familial factors associated with protective sexual behaviours among youth. At the community level, accessibility to youth friendly services and presence of role models were some other factors that enabled youth to engage in protective sexual behaviours. This study contributed to the rarely acknowledged issue of youth protective sexual behaviours using mixed methods in African social demography in the Nigerian context.

The study has shown that there are Nigerian youth engaging in protective sexual behaviours contrary to the majority of available literature that has consistently pained youth in the negative way. This implies that continuous examination of

protective sexual behaviours among youth has tremendous potential to promote not health youth sexual and reproductive health.

CHAPTER 1:

1.1 Introduction

Visualize two young adults who grew up in a community in Nigeria or South Africa; Mary and Martha. This community is known to be a "bad reputation" neighbourhood and by the time Mary and Martha were 15 years old, each had experienced several years of family conflict. When their parents divorced they were raised (along with older siblings) by mothers, and their fathers played only marginal role in their lives after the divorce. They were below average students in school and got into trouble with the police as they were growing up as they had no role models. They were both exposed to risk factors which have been well documented in the literature as an influence on youth sexual behaviours.

From the literature, we would expect them to have similar outcomes based on their shared beginnings. However, five years later, Mary is happy, healthy and well adapted, has finished university, and is currently employed. She has positive aspirations about developing herself and she is in a relationship and has knowledge of and uses safe sex practices. Martha on the other hand never graduated from high school, has been in and out of jobs over the last several years, is unemployed and drinks heavily, and has two children from different men.

Mary survived risky environments, was able to stay healthy despite adversity in her life and exhibited a resilient trajectory. Martha developed negative outcomes in response to high-risk conditions and exhibited a vulnerable trajectory. The central research question this study aims to examine is why youth with similar backgrounds and experiences have different outcomes. This involves resilience. Resilience theory starts with the universal finding of massive individual variation in people's responses to the same adverse environment/ experiences (Rutter, 1999).

1.2. Problem Statement

Recognizing the importance of protective sexual behaviours, a number of programs have been put in place to encourage protective sexual behaviour. These programs have adopted all or some of the components of the President's Emergency Plan for AIDS Relief (PEPFAR) ABC (abstinence/delay of sexual debut, being faithful/partner reduction, correct and consistent condom use) approach (Chin et al., 2012; Coates, Richter, & Caceres, 2008; Mavedzenge, Doyle, & Ross, 2011; Michielsen et al., 2010).

Uganda has been publicized as the success story of the ABC strategy, with a significant reduction of HIV/AIDS infection rates and a push towards change in sexual behaviour (Green, Halperin, Nantulya, & Hogle, 2006; Green et al., 2013). In other countries, like Zimbabwe, partner reduction has been seen to play a decisive role in reversing the HIV epidemic (Halperin et al., 2011).

The influence of friends on adolescents' unhealthy behaviours is well-established, as are the protective effects of parent connectedness against risky behaviours, but the influence of friends and parents on adolescents' health-promoting behaviours is examined less frequently.

In Nigeria, some factors have been associated with protective sexual behaviour among youth. Using national representative data in exploring factors associated with adolescent sexual initiation in Nigeria, religiosity and self-efficacy were found to be protective factors at the individual level for females delaying sexual initiation (Fatusi & Blum 2008). The mechanisms through which religiosity can influence youth sexual behaviour may be in the form of social capital, specific doctrines, and having positive role models in religious settings. The protective effects of religion have also been confirmed in qualitative studies in Nigeria (Odimegwu, 2005; Wusu, 2011) and Odimegwu (2005) has pointed out that different sanctions exist among different religious groups for youth engaging in premarital sexual behaviour.

Only a relative handful of studies (e.g., (Kabiru, Beguy, Ndugwa, Zulu, & Jessor, 2012; Kabiru, Elung'ata, Mojola, & Beguy, 2014; Ndugwa et al., 2011; Odimegwu, 2005)) have documented the mechanisms through which protective factors influence protective sexual behaviours of youth and fewer studies explain how protective factors operate at the family or community level. In addition, there are also limited studies on the characteristics of youth engaging in protective behaviours.

The paucity of studies on youth engaging in protective sexual behaviours is costly. The need for a coherent response in addressing sexual behaviours of youth is pressing. Interventions must focus on positive factors and protective mechanisms and examine how these positive mechanisms operate. Understanding these mechanisms will have useful implications for both prevention and management strategies. It is therefore important to ask how young people in different contexts, with similar or different socio-economic characteristics, engage in protective behaviours.

1.2.1. Background

A number of the leading causes of death, disease and disability (HIV/AIDS/ STI) now and in the near future could be significantly reduced by preventing youth sexual behaviours that are initiated early and supported by the changing environments in which these young interact with as they transition (WHO, 2017). The health and social development of young people in low and middle-income countries (LMICs), remains a serious cause for concern.

Early sexual debut, inconsistent condom use and child marriage are some of the important factors that have been linked to the poor sexual and reproductive health outcomes of young people in LMICs. Recent studies have presented information on youth engaging in positive sexual behaviours such as abstinence (Kabiru & Ezeh, 2007; Mokwena & Morabe, 2016) and condom use (Eggers et al., 2016). However, none of these studies has been able to determine, why youth with

similar backgrounds and shared beginnings have different sexual behavioural outcomes. This study highlights the significance of strength-based approaches in addressing youth sexual behaviour.

The world is witnessing the largest ever population of young adults aged 10-24, and notable changes, for instance, greater economic inequality and low social mobility worldwide are decisive for their health and well-being (Patton et al., 2016). There is a marked difference between adolescents today compared to previous generations, and their "health profiles" now rank among the worst in sub-Saharan Africa (SSA) (Patton et al., 2012). The extent of variation between young adults today and young adults in the previous generations has been attributed to the disadvantageous contexts in which youth in SSA currently live (Blum, 2007). These contexts are characterized by extreme poverty, unemployment and sexually transmitted infections (Blum, Bastos, Kabiru, & Le, 2012), which are a threat to the physical, emotional, and sexual and reproductive health of youth. Yet, in the face of this extreme adversity some youth thrive.

At the International Conference on Population and Development (ICPD) in Cairo (1994), the health and wellbeing of young people was at the forefront (Chandra-Mouli, Svanemyr, et al., 2015). Consequently, at its 5-year review (ICPD, 1999), several governments acknowledged that paying attention to the health of young people not only improves their development and well-being, but also affects the present and future well-being of their immediate environment and communities. This was reiterated by the commission on Population and Development in 2012 (Chandra-Mouli, Svanemyr, et al., 2015).

Although a lot of research, programs and policies have been implemented in the past two decades regarding the sexual and reproductive health (SRH) of youth (Chandra-Mouli, Lane, & Wong, 2015), gaps still exist in the understanding of the sexual needs of young adults in sub-Saharan Africa (Blum et al., 2012). Knowledge about the SRH of youth is important because one quarter of the global population

is made up of people aged 15-24 and about a third of people in sub-Saharan Africa are aged 10-24 (Kabiru et al., 2013). This large population of young people known as "youth bulge" has been described as a useful tool for achieving the "demographic dividend" and could be a blessing or a curse depending on strategies and policies that are in place to ensure their development and well-being (Bloom, Canning, & Sevilla, 2003).

Recently, Petersen, Koller, Motti-Stefanidi, and Verma (2016), established that the obscure inadvertence of young adults has stimulated key reports from several leading sources (The Lancet, UNICEF and the WHO) who have all highlighted the need to transform youth health. These studies have recognized that youth are an important age group, usually faced with physical, emotional and hormonal changes as they transition to adulthood (Arain et al., 2013). This phase has been associated with uncertainties, challenges and anxiety, especially in developing countries as a result of socio-political changes such as harmful traditional practices, gender norms and cultural stigma (Blum, 2007; Caouette & Guyer, 2014). These challenges may have implications for their sexual and reproductive health, and could predispose them to risky sexual behaviours (Manu, Mba, Asare, Odoi-Agyarko, & Asante, 2015). In addition, a review of progress made on SRH rights of young girls in LMICs also revealed that more work needs to be done regarding the SRH of young girls (Santhya & Jejeebhoy, 2015).

A large number (16 million) of young adults aged 15-19 give birth each year, and this contributes to about 11% of all births globally (Neal et al., 2012; WHO, 2013). Nearly 95% of these births occur in LMICs, with Nigeria as one of the countries where the majority of these births occur (Patton et al., 2012; WHO, 2013). Early child bearing has serious consequences for the mother (maternal mortality, low educational and economic attainment) (Addo, Sassler, & Williams, 2016; Restrepo-Méndez & Victora, 2014) and child (infant mortality) (Ganchimeg et al., 2014).

Currently, HIV ranks as the second leading cause of death for adolescents in sub-Saharan Africa (Patton et al., 2016). About one in ten adolescents and young adults infected with HIV live in Nigeria (UNAIDS, 2015) and according to Adegoke and Steyn (2017), youth aged 15-24 account for 60% of new HIV infections. These infections have been partly attributed to the low socio-economic status of young adults in Nigeria (Folayan, Harrison, Odetoyinbo, & Brown, 2014).

Poverty in Nigeria is widespread and affects many young people due to little educational opportunity, which results in lack of employment (Oduwole, 2015). According to Akande (2013), about 2/3 of all those who are unemployed are youth aged between 22 and 24 and by gender, females are more likely to be unemployed than males. Educational attainment affects unemployment trends; more than half of unemployed youth did not have post primary education from 2008-2012 (Akande, 2013). Less than a quarter of youth in Nigeria had post-secondary education and gender differentials were also evident as more males had secondary education compared to females (NBS, 2013). This low socio-economic status in terms of education and employment could place youth at risk of negative SRH outcomes in Nigeria.

Ahonsi (2015), in a commentary documented that the SRH of young people aged 15-24 in Nigeria remains poorly addressed. He added that considerable socioeconomic, regional and cultural differences at the individual and household levels have been observed as factors influencing unwanted pregnancies, early child bearing and STDs. For instance, according to Shittu et al. (2010), the SRH status of women and young girls in northern Nigeria is among the worst in the world. This highlights the regional differentials in the SRH of young girls in the Nigerian context.

Research has suggested that the differences in the SRH of young females and males in Northern Nigeria could be a result of the low educational attainment among females. In addition, age at the time of the first sexual encounter in some

other regions is usually in late adolescence, in contrast with Northern girls who marry early and thus exposed to early sexual debut which has negative consequences for their health and well-being (Annabel & Mairo, 2007). Other prevalent forms of risky sexual behaviour among Nigerian youth include multiple sexual partnership and non-condom use. Figures from the 2013 Nigerian Demographic and Health Surveys show that only 2% of women and 51% of men reported condom use of the 2% of women and 9% of men that reported having multiple sexual partners in the past year preceding the survey (NDHS, 2013).

Some studies using nationally representative data have shown that young adults who come from low socio-economic backgrounds are more likely to have multiple sexual partnerships and engage in transactional sex compared to their counterparts (Odimegwu & Somefun, 2017; Speizer, Fotso, Davis, Saad, & Otai, 2013; Speizer, Guilkey, Calhoun, Corroon, & O'Hara, 2017). Others have linked these behaviours with family characteristics, arguing that most times, the characteristics of the individual may not matter much, but that of the family which could be in form of structure (living arrangement) or parenting skills (Okigbo et al., 2015; Tenkorang & Adjei, 2015).

In response, various interventions such as the Global HIV/AIDS in Nigeria (GHAIN) project and peer education in schools have been put in place to target youth engaging in risky sexual behaviour; and several other stakeholders continually attempt to tackle the health of youth. A summary by Haberland and Rogow (2015) posit, that these interventions may seem effectual on the surface but become complex after some time. For instance, in a systematic review, Amaugo, Papadopoulos, Ochieng, and Ali (2014) established that sexual health school-based education has been used by the federal government to confront these issues. This has led to an increased knowledge about sexual health issues among school-going youth. However, one major drawback of this type of interventions is focusing on school-going adolescents when a majority of studies

have concluded that youth out of school may be more likely to engage in risky sexual behaviour.

Another intervention which has been put in place in Nigeria and targets youth both in and out of school is the "safe spaces" program. This program developed by the Population Council identifies a safe social place where adolescents can meet frequently to discuss issues concerning their SRH (Baldwin, 2011). These spaces also include mentors who can provide life skills which could be in the form of information on SRH issues, financial literacy and networking for adolescents (Svanemyr, Amin, Robles, & Greene, 2015). However, evaluating the progress of this intervention may be complex as results may take a while to be evident in the sexual behavioural patterns of youth.

Some other reported interventions and programmes like mass media exposure by the National Agency for the Control of HIV/AIDS (NACA) have simply not had sufficient resources in terms of capital, personnel and structure especially at the level of local government (Geary, Silverstein, & Fatusi, 2010).

1.2.2. Protective Sexual Behaviours

Heathfield and Fusco (2015) have reiterated in their book that youth are a diverse group. While some young people are going through challenges that may affect their developmental outcomes as research has documented, many more are able to overcome these challenges and reasonably stay safe from negative outcomes. A number of studies have put forward the importance of exploring protective factors as well as risk factors, and to reinforce protective factors in interventions (Farrington & Ttofi, 2011; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). They argue that youth behaviours are multifaceted, and that policies that focus on one spectrum is less likely to be effective (Deković, 1999).

Protective factors have been described as circumstances or characteristics of individuals, families and communities that moderate or reduce risk. They have been characterized as acting as "buffers", as they help moderate the negative

effect of adversity on youth outcomes (Vanderbilt-Adriance & Shaw, 2008). According to Fergus and Zimmerman (2005), these factors may be in the form of individual assets which include; high self-efficacy and skills. They could also be in form of close parental relationship and support at the family level.

Protective sexual behaviours among youth are imperative for youth and community development. The youth phase is the best time to establish protective sexual behaviours among young people (Musavian, Pasha, Rahebi, Roushan, & Ghanbari, 2014). This is because they will be aware of these behaviours up until adulthood, which will have consequences for morbidity during their life course (Viner & Macfarlane, 2005).

1.3. Review of the Literature

This literature review examines what is known about young people who engage in protective behaviours, with a particular focus on youth in Nigeria. This section is subdivided into three sections focusing on global reviews, sub-Saharan reviews and country-specific reviews. Risk factors increases the odds of negative outcomes, while protective factors moderate exposure to risk, or indeed, directly reduce the odds of negative outcomes. Although studies examining protective factors are not new in the development discourse, studies examining protective factors for at-risk youth in Nigeria are wanting. Research on protective behaviours among youth can help explain why some youth who are high risk for engaging in risky behaviours do not engage in such activity (Burton & Marshall, 2005).

Some authors argue that risk and protective factors usually work in opposite directions (Fergusson et al., 2003) while some posit that risk and protective factors have to interact in order to influence an outcome (Coleman & Hagell, 2007). It is this reaction between risk and protective factors that has been termed resilience (Rutter, 1993).

Examples of risk and protective factors could include individual perception of risk, the quality of family and peer relationships, access to education for an individual

young person, socio-economic status and access to quality healthcare services within a particular community. Recognizing resilience involves two implications: the individual must have been exposed to risk and secondly, the individual performs adequately regardless of exposure (Kuperminc, Wilkins, Roche, & Alvarez-Jimenez, 2009).

1.3.1. Global Reviews

At the individual level, positive behaviours such as engaging in extracurricular activities have been associated with youth development outcomes although direction of association has varied. Lubans, Plotnikoff, and Lubans (2012) in their systematic review documented the positive relationship between physical activity and youth development although most of the studies they selected only considered youth at risk (low socio-economic status, lone parenthood and parental drug use). Their results suggested the importance of physical activity for the health and wellbeing of youth. However, some other studies have found a negative association between engagement in extracurricular activity and youth positive development (Burton & Marshall, 2005; Fauth, Roth, & Brooks-Gunn, 2007). Some authors have explained that this may be a result of physical activity in the community which may not be as organized as activities in a school environment (Gardner, Roth, & Brooks-Gunn, 2011).

School-based extracurricular activities have been documented to provide young adults with opportunities that enable easier engagement with peers, and improved self-esteem (Gilman, Meyers, & Perez, 2004; Mahoney, Harris, & Eccles, 2006). They have also been linked to some positive youth developmental outcomes such as positive educational outcomes, lower likelihood of substance use and reduced frequency of sexual activity among females (Darling, Caldwell, & Smith, 2005; Feldman & Matjasko, 2005). Nevertheless, some recent studies (Grossbard, Geisner, Neighbors, Kilmer, & Larimer, 2007; Maggs, Williams, & Lee, 2011) have demonstrated that participation in these school-based extracurricular

activities may not always result in positive youth development. Several waves of data from an online longitudinal survey in the United States, found school-based extracurricular activities to be positively associated with harassment although the type of harassment varied by gender. Sexual harassment as a result of participating in school-based extracurricular activities was more likely to occur among females.

Coping skills, religious beliefs, optimism and positive orientation towards life are factors that have been identified as characteristics that can influence protective behaviours among youth. Documenting the influence of religiosity and religious affiliation on sexual HIV risk in their systematic review, Shaw and El-Bassel (2014) reported that protective effects were found most often among groups of people affiliated with Islam. In the United States, McCree, Wingood, DiClemente, Davies, and Harrington (2003) examining the influence of religiosity (religious involvement and practices) on adolescent behaviours found that religious adolescents were significantly more likely to have higher self-efficacy in negotiating condom use and sexual intercourse with both old and new partners. The protective role of religious involvement among young adults has been documented in other studies (Butler-Barnes et al., 2016; Haglund & Fehring, 2010).

Results differed in a study in France which aimed to examine the association between religiosity and contraceptive behaviour. It found a positive relationship between regular attendance and late sexual debut regardless of religious affiliation. On condom use, respondents who were less than 30 years old had lower odds of using condoms at first sexual intercourse (Moreau, Trussell, & Bajos, 2013).

At the family level, socio-economic status (SES) is one of the main predictors of youth development that provides the foundations of educational achievement, and on which much success in later life depends. This has also been linked to

sexual behaviour of youth where youth from low socio-economic backgrounds have lower educational attainment and negative sexual outcomes. Exploring the relationship between household socio-economic status and differentials in youth development patterns (employment, appropriate education, skill development and awareness about health), Malik (2015) concluded that youth from poorer household had a higher likelihood of having low development patterns. Their results are similar to work done in Sweden where family SES was reported to positively influence youth health (Plenty & Mood, 2016).

Parental education and occupation have also been used as measures of family SES. For instance, Plenty and Mood (2016) found no significant association between parental education and youth health. They suggest that their findings may be due to the high average level of education in Sweden and economic and material resources may be more essential for youth health. Some other studies have documented the positive relationship between parental education and youth academic achievement explaining that parents who have attained higher levels of educational usually have higher prestige occupations which may enable them serve as role models for their youth (Hill et al., 2004).

Furthermore, some protective factors not related to SES such as family structure, living arrangement, parental monitoring, involvement and the quality of relationship between parent and youth could also influence youth behaviours. Parental presence when youth arrive from school has also been identified as a strong protective factor for youth behaviour (Muscari, 2016). Examining the protective influences of parental monitoring and family proximity on adolescent behaviour among young Mexican adolescents living in the Southwestern United States, Van Campen and Romero (2012) found parental monitoring and family proximity to be significantly associated with positive sexual behaviours such as abstinence and reduced number of lifetime sexual encounters. The protective effect of parental monitoring has also been documented in Bosnia and

Herzegovina (Nash, Mujanovic, & Winfree Jr, 2011). These results highlight the importance of parent-child relationships.

Studies (Flouri, Midouhas, Joshi, & Tzavidis, 2015; Romer et al., 1999) have established that parental support and positive relationships with teachers in the school environment may outweigh the influence of low SES. For example, an intervention study (Murray & Malmgren, 2005) examining the influence of positive teacher-student relationship among adolescents living in high-poverty urban environments found an improvement in the academic scores of the participants although they did not find any impact on adolescent emotional adjustment. The importance of positive relationship in the school environment has also been confirmed in a cross-sectional study among low-income urban youth (Murray, 2009).

While family continues to be influential across adolescence, the influence of peers increases as young people pass through adolescence. This is one feature that differentiates the social determinants of health in adolescence from other age groups. Peers can reinforce deviant behaviours through direct social interaction, modelling, and reinforcement.

Studies have documented the relationship between peer norms and youth behaviour. Resilient youth are more likely to have peers who are supportive, engage in prosocial behaviours and engage in protective behaviours such us delaying sexual debut, consistent use of condoms and being faithful to one partner (Brooks-Russell, Simons-Morton, Haynie, Farhat, & Wang, 2014; Coley, Lombardi, Lynch, Mahalik, & Sims, 2013).

1.3.2. Sub-Saharan Africa Reviews

Studies in sub-Saharan Africa have also found similar associations between the role of protective factors and youth behaviour.

Using recent data from Demographic and Health Surveys of sixteen countries representative of each African region (East, West, Southern and Central), a study by Odimegwu, Somefun, and Chisumpa (2018) established that condom use at last sex ranged from 26% in West Africa to 55% in both East and Southern Africa among females, while it ranged from 43% in West Africa to 72% in East Africa among their male counterparts. Another study using nationally representative data from nineteen countries in SSA, Magadi and Uchudi (2015) found that female adolescents who were Protestants were at lower risk of early sexual debut compared to their counterparts who were Catholics but results differed for males. Their results differ from what was found in Rwanda where there were no significant differences between Catholics and Protestants practicing primary sexual abstinence (Babalola, Awasum, & Quenum-Renaud, 2002). In Zambia, exploring the effect of religious affiliation on different sexual behaviours, results showed that affiliation with some specific groups (Seventh Day Adventists, Jehovah's Witnesses, and the New Apostolic Church Seventh Day Adventists, Jehovah's Witnesses, and the New Apostolic Church) was associated with delayed sexual initiation but not condom use at first sex which may have implications for risk of HIV (Agha, Hutchinson, & Kusanthan, 2006). Due to inconclusive results on the relationship between religion and youth sexual behaviour, Olivier and Wodon (2015) reviewed studies on religion and various health outcomes. They concluded that existing studies are commonly quantitative and suggest the need for better understanding of how new religious traditions impact on sexual behaviours.

The results for the relationship between education and youth sexual behaviour have also been mixed and dependent on the type of sexual behaviour. A number of studies have documented the protective effect of education, especially higher education on youth sexual behaviour (Eaton & Fllsher, 2000; Hargreaves et al., 2008; Rosenberg et al., 2015). Most of these studies have argued that school attendance may provide young adults with better access to HIV prevention materials, skills in negotiating condom use and sexual health education. On the

other hand, some other authors posit that female education may be associated with greater mobility and higher socioeconomic status which puts them at risk. For instance, examining condom use in selected urban areas in Tanzania among bar maids, Akarro (2009) found females who did not complete primary education more likely to use condoms compared to their counterparts with secondary education and above.

Education has also been associated with self-efficacy. Self –efficacy has been described as a multidimensional concept that refers to an individual being able to make decisions regarding sexual behaviours. It has been documented to be an important factor for health-promoting behaviours in the lives of young adults (Bandura, 1986). Using a sample of male and female adolescents aged 13-19 in Botswana, Chilisa et al. (2013) concluded that self-efficacy was a significant predictor of safe sex among adolescents. Their findings are similar to what other studies have found in South Africa (Leddy, Chakravarty, Dladla, de Bruyn, & Darbes, 2016; Onoya et al., 2011).

Another factor at the individual level that could influence youth protective behaviour is experience of childhood abuse. Although literature is scarce on this subject (Olusegun & Idowu, 2016), a recent study examining the relationship between experience of childhood abuse and sexual behaviours and found a positive association between HIV testing and experience of childhood abuse (Richter et al., 2014).

A number of familial characteristics have been associated with youth development in the region (Somefun & Odimegwu, 2018b). For example, using living arrangement as a measure of family structure in rural Uganda, Pilgrim et al. (2014) highlighted the importance of living with both parents and having resident biological fathers for youth sexual behaviour. Living arrangements alone may not matter for positive sexual outcomes but the positive relationships and communication within the family may have a stronger influence on these

behaviours. Using a cross-sectional study in Ghana documenting reproductive health risk and protective factors among unmarried youth found parent-child communication about avoiding sex to be associated with abstinence among male youth but not for females (Karim, Magnani, Morgan, & Bond, 2003). This is in contrast to another study carried out in Zambia (Magnani et al., 2002). In Kenya, documenting the experiences of adolescent girls aged 12-17 years on mother–daughter communication, participants reported that they wished communication regarding sexual behaviours started early and more frequent (Crichton, Ibisomi, & Gyimah, 2012).

In Cameroon, examining the role of family environment and peers in prevention of HIV among unmarried youths, Dimbuene and Defo (2011) also documented the importance of family for protective behaviours of youth. The authors concluded that parental control reduced the odds of youth engagement in early sexual debut by 41%. Other forms of parent-child relationship have been established. For example a study in Ghana found that youth who stated a high level of perceived parental understating reported low levels of sexual and physical violence (Ohene, Johnson, Atunah-Jay, Owusu, & Borowsky, 2015).

Stephenson, Simon, and Finneran (2014) documented the relationship between community-level factors and early sexual debut using data from a National Survey of Adolescents in four African countries (Burkina Faso, Ghana, Malawi, and Uganda). Their results varied in the countries studied and they highlighted the importance of context in examining adolescent sexual behaviour. At the community level, social capital can act as a protective factor for youth behaviours. Social capital could be in the form of trusting members in the community, cooperation, local identity and belonging to a community group. Measuring social capital in terms of participating in local community networks, Gregson, Terceira, Mushati, Nyamukapa, and Campbell (2004) explored the effect of group engagement at the community level on helping young women to avoid HIV in rural Zimbabwe. Their results showed a positive relationship between group

engagement and prevention of HIV which was also associated with safer sexual behaviours. Also, the association between belonging to a local group and youth sexual behaviour may not always be positive. This is because they may be exclusionary and in some contexts, support chauvinist attitudes to sexual behaviour and promote gender norms that may put women at risk of HIV. Similarly, exploring the relationship between resilience, social capital and self-rated health among HIV positive people in South Africa, Dageid and Grønlie (2015) found resilience to be a result of social and personal resources which in turn was positively associated with self-rated health.

An important part of the community which has not been thoroughly explored is the school environment. For example, schools are often not included in definitions of social capital but they are an important aspect of community for young people, representing places where social networks are formulated and exploited for support.

1.3.3. Country-specific reviews

At the individual level, education has been reported to predict higher levels of condom use in Nigeria (Adebowale, Ajiboye, & Arulogun, 2013; Oyediran, Feyisetan, & Akpan, 2011). Self-efficacy has also been found to predict condom use among Nigerian adolescents using National representative data (Fatusi & Blum 2008).

In Nigeria, examining the individual and community factors associated with adolescent sexual initiation using nationally representative samples of Nigerian adolescents, (Fatusi & Blum, 2008) found religiosity to be a protective factor for females delaying sexual initiation but not for males. Other studies have focused on religious affiliation and a recent research conducted using the Nigerian demographic and health survey revealed that males affiliated to Islam had lower odds of having multiple sexual partners (Odimegwu & Somefun, 2017). Another study in Nigeria also found premarital sexual activity to have increased among

Christian adolescents and delayed sexual activity among Muslim respondents (Agha, 2009). They suggested that affiliation with Muslim culture serves as a protective factor against the influence of a more liberal social environment on the timing sexual debut. Although results are mixed, gender differentials are evident in the relationship between religion and youth sexual behaviour in Nigeria.

A number of studies exist on the role of familial variables and youth sexual behaviour in Nigeria. Using a sample of undergraduate students in a South Western Nigerian University, Odimegwu and Adedini (2013) found poverty to be a risk factor for sexual behaviour for youth sexual behaviour. On the contrary, Isiugo-Abanihe and Oyediran (2004) found household poverty to be a protective factor for youth sexual behaviour in Nigeria. They explain that parents of youth from rich households may not have time to monitor the activities of young adults or may be working and living in other cities which may enable youth have freedom to engage in risky sexual behaviours.

Other forms of family characteristics have also been associated with youth sexual behaviour. A study in Niger State, Nigeria has found that adolescents whose parents were not living together had higher odds of engaging in risky sexual behaviour (Odimegwu, Solanke, & Adedokun, 2002). Using monogamous and polygamous households as a proxy for family structure, (Slap et al., 2003) reported the protective effect of belonging to a monogamous household for adolescent sexual behaviour in Plateau state, Nigeria. Their results are similar to what other studies have found among Yoruba adolescents in Nigeria (Oyefeso & Adegoke, 1992) and in Oyo State Nigeria (Bamgbade & Saloviita, 2014).

Parent child communication has also been identified as a protective factor for youth sexual behaviour in Nigeria (Iliyasu, Aliyu, Abubakar, & Galadanci, 2012; Melvin, 2012) although a recent study has reported that the parents and adolescents described the existing quality and quantity of communication as partially focused and insufficient (Obiyan & Agunbiade, 2014).

There are a few studies documenting the association between contextual characteristics and youth sexual behaviour in Nigeria. Using the 2003 Nigeria Demographic and Health Survey, (Uthman, 2008) highlighted the geographic variation in rates of early sexual debut in Nigeria. Their results also showed the protective effect of a high community median age of marriage for decreased likelihood of early sexual debut.

1.4. Gaps in Literature

While there are a number of studies that have documented factors associated with protective sexual behaviours among youth, literature on the reasons why youth engage in protective sexual behaviours in the social environment as their counterparts' who engage in risky sexual behaviours is lacking. There is a dearth of research on studies explaining why young people experiencing similar circumstances behave and respond differently, which is the gap this study aims to fill.

A number of studies have examined the determinants of abstinence in SSA (Cleland & Ali, 2006; Eggers et al., 2017; Rijsdijk et al., 2012; Tumwesigye, Ingham, & Holmes, 2008). For instance, using nationally representative data collected from Burkinabé, Ghanaian, Malawian, and Ugandan adolescents, Kabiru and Ezeh (2007) examined the factors associated with sexual abstinence among these adolescents. Their results showed that: the lack of a partner, postponement of sex until marriage, fear of pregnancy, avoiding STIs, and young age were reasons given by adolescents for abstinence. A major limitation of their study is that analysis was restricted to adolescents aged 12-19. In addition, information on the main reasons why adolescents chose to be abstinent was restricted to the available response options provided in the survey. Although the study aimed to examine correlates of abstinence, it is important reasons behind youth decision to abstain.

Using longitudinal data in the Western Cape, South Africa, Eggers et al. (2017) aimed to explore factors associated with primary and secondary abstinence among young males and females. Although their results found social norms to be a key predictor of abstinence, their results cannot be generalized as they explored just one of the provinces in South Africa and their sample size was very small. At the individual level, religion has also been associated with protective sexual behaviours among youth but a majority of the studies in SSA have not explored affiliation and the mechanisms through which religious beliefs and norms influence this association. In addition, there is a dearth of qualitative research on how religious affiliation and religiosity are linked to specific sexual risk behaviours among youth (Shaw & El-Bassel, 2014).

Family structure and family dynamics are variables that have been associated with protective behaviours among youth. The definition of family is changing and family structure in developed countries differs from that in developing countries (Bigombe & Khadiagala, 2003; Sharma, 2013). This can be attributed to socio-economic changes, which have influenced factors such as entry into marriage, cohabitation and divorce rates, which differ in developed and developing countries. Research on family and youth protective behaviours has largely been in developed countries and findings have varied. Due to the changing family structure in Nigeria, it is important to explore the mechanisms through which family influences youth protective sexual behaviours in Nigeria.

Consistent measures of protective sexual behaviours which will enable a number of research questions to be addressed do not exist in the literature (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). This means that there have been challenges in defining a protective or positive behaviour. This is because definitions of protective sexual behaviours vary in different contexts.

Also, the existing literature is not very clear on whether protective factors are the absence of risk factors or whether they can be treated as “separate entities” (Zeng,

Chu, & Lee, 2015). By identifying key dimensions of the concept of resilience, consistent measures can then be developed. Some studies have measured resilience with the individual characteristics of youth while others have established that environmental factors such as family structure plays an important role in building resilience among youth. Currently, there is a growing body of research suggesting that resilience among youth can be influenced by complex interactions between individual and environmental factors. This research will fill this gap by exploring the individual, family and neighbourhood factors associated with resilience among youth. Specifically, this research clearly outlines what protective behaviours are and also describes the protective factors that can influence positive youth development.

Methodologically, most of the research exploring the association between protective factors and youth outcomes has focused on a variable centred approach, exploring only the relationships among variables instead of examining similarities and differences among subgroups of individuals (Copeland-Linder, Lambert, & Ialongo, 2010). While a variable centered approach has the advantage of detailing evidence on the significance of each protective factor in determining a specific outcome, it has been established (Masten, 2001) that the approach can ignore individual or sub-group differences. This is because each measure of sexual behaviour is examined separately and this does not reveal the complex, real-life experiences of young adults to provide a broad view of individual behaviour. On the other hand, a person-centered analysis investigates sub-groups of individuals and is more suitable for examining how risk and protective factors co-occur and operate simultaneously. It can provide distinctive understanding of how an individual's entire spectrum of sexual behaviours interact, detail what predicts particular patterns of behaviour, and what the consequences are (Vasilenko, Kugler, Butera, & Lanza, 2015). This study made use of both approaches.

In addition, most studies have been retrospective, that is they have relied on archival data collected for different purposes instead of that tailored for the

specific aims of the study. This study examined protective factors in a prospective context (i.e., through face-to-face interviews), whereby the specific required information with regard to such factors was derived not only to a greater extent, but with greater reliability. The use of qualitative methods in this study also provided critical insight and context, resulting in recent information that can help frame interventions aimed at enhancing positive youth development in Nigeria. Due to this approach, this study was able to document what we can learn from youth engaging in protective sexual behaviour that other studies missed.

1.5. Statement of Purpose

This study examined protective sexual behaviours among youth in Nigeria. A concurrent triangulation mixed methods design was used, and it involved analysing quantitative data first and then explaining the quantitative results with in-depth qualitative data. In the first, quantitative phase of the study, the 2013 Nigeria Demographic and Health survey data were analysed for youth aged 15-24 to examine the prevalence and patterns of protective sexual behaviours among youth. The ecological systems theory was also used to assess whether variables at the individual, family and community level are associated with protective sexual behaviour among youth. The second, qualitative phase was conducted as a follow up to help explain the quantitative results. In this explanatory follow-up, the study explored protective sexual behaviours among youth by randomly selecting study sites from four states that had highest prevalence of protective behaviours from the quantitative results (NDHS).

1.6. Research Questions

This study answered the following questions among youth in Nigeria: Who are the youth engaging in protective sexual behaviours in Nigeria? Why do some youth engage in protective sexual behaviours in the same social environment while others who do not? What social, cultural and structural factors influence youth's ability to exhibit resilience in situations that compromise their sexual behaviours?

How do youth navigate the challenges of everyday life in the face of extreme sexual vulnerability? How can policymakers best identify the mechanisms through which protective factors can be strengthened among young people in neighbourhoods, schools and families?

1.7. Research Objectives

1.7.1 General Objective

To examine why some youth engage in protective sexual behaviour in Nigeria

1.7.2. Specific Objectives

1. To describe the levels and patterns of protective sexual behaviour among youth in Nigeria
2. To identify the various characteristics (individual, family, school and neighbourhood) associated with protective sexual behaviours among youth in Nigeria
3. To explore the mechanisms through which protective factors influence protective sexual behaviours among youth in Nigeria
4. To examine why youth choose to engage in protective sexual behaviours in Nigeria
5. To understand how youth manoeuvre the challenges of everyday life in the face of extreme sexual vulnerability

1.8. Definitions and Limitations of the Study

Youth

In this study, youth was defined as males and females aged 15-24 years based on the definition of youth by the United Nations. s

Resilience

Numerous definitions of resilience require conditions of an identified risk or challenge followed by some defined measure of positive outcome. Resilience is not a one-dimensional, dichotomous attribute that an individual has or does not have. It has been suggested that a resilient individual must show positive outcomes across multiple aspects of life over a period of time. For the scope of this paper,

resilience refers to achieving positive outcomes despite challenging or threatening circumstances.

Neighbourhood Factors

These are the characteristics of a neighbourhood. They include neighbourhood size, population density, distance to an urban centre, ethnic composition, percentage of households with access to resources (improved water) and number of health clinics and schools. A neighbourhood comprises people living in a particular area or in a common location. In the 2013 Demographic and health survey programme, the primary sampling units (PSU) were considered proxies for neighbourhoods.

Protective Sexual Behaviours

These sexual behaviours include; primary and recent abstinence, single sexual partnerships, HIV testing and condom use at last sex.

1.9. Significance of the Study

We chose our study population, of young adults aged 15–24 years, because their behaviour, will largely shape epidemic pathways in the next decade. There is a strong justification for investing in the well-being of young people in Nigeria. Such investments to help young people make a healthy transition into adulthood are also directly related to achieving regional and national development goals in sub-Saharan Africa. Helping young people complete their education, prevent unintended pregnancy and HIV infection, accumulate skills that are relevant to the job market and start an independent livelihood is critical to ensure that they can positively engage in civil society.

Also, from a life course perspective, investing in young people's sexual and reproductive health will help them make informed decisions about marriage and childbearing and prepare them to become the next generation of parents. Early marriage and pregnancy and limited family planning services are major

contributors to the inability of girls and young women to complete their education, and achieve their full potential (Glasier, Gülmezoglu, Schmid, Moreno, & Van Look, 2006). The social, cultural, emotional, educational, and economic foundations established during adolescence, reap benefits in the decades that follow. Conversely, health risks that begin in adolescence amplify over time, to have major consequences for later life. The sustainable development goals cannot be achieved without addressing adolescents. And the new global strategy for women's, children's and adolescent's health is the first global strategy to explicitly address adolescent health and well-being.

The existence of protective factors is not a new concept in the youth sexual and reproductive field. However, research is still lacking in this area and understanding how protective factors influence positive youth development is significant if Nigeria intends to decrease the prevalence of sexually transmitted infections. The identification of protective factors for youth development would be useful for programs and policies so they can be developed for youth who are not previously exposed to these factors.

The study of resilience has been associated with interventions in that knowledge of protective factors can inform the development of targeted interventions (Olsson et al., 2003). Although risk reduction and positive development approaches share the common goal of prevention of negative outcomes, the emphasis of each approach is somewhat different. A positive approach emphasizes the building of skills and capacities that facilitate successful negotiation of high-risk environments. It also focusses on young people's agency and their assets, not just their deficits. A risk reduction approach on the other hand emphasizes removing or avoiding factors or processes implicated in the development of problematic outcomes. For sustained effect, the judicious use of both methods of intervention is essential. Certainly, there is still much to learn from studies of resilience in young people. Research on resilience can challenge theory and provoke important refinements. Global economic agencies like the

World Bank and the United Nations are investing in children as a key strategy for promoting the economic future of nations as well as individuals, again with a strong emphasis on resilience. Information on strengths-based interventions will be useful in helping young people adopt healthy coping responses to multi-systemic stressors. The results from this thesis are also relevant for policy makers for whom this study will provide surveillance information and identify focal areas for the targeting of policy interventions

CHAPTER 2

THEORIES AND CONCEPTUAL MODELS

2.1. Theoretical Frameworks

Ecological systems theory and the risk and resilience framework were used for this study. The ecological system theory was developed by Bronfenbrenner (1992), and it was used to study the relationships with individuals' contexts within communities and the wider society. This theory indicates that interpersonal dynamics such as sexual behaviour usually occurs in the microsystem which is the most immediate environment; other ecological systems such as the exo and macro system have an influence on these behaviours. This is similar to the risk and resilience framework which examines the ability of individuals and communities to overcome, positively adapt or cope with adversity. The risk and resilience framework, similar to the ecological system theory, provides an orientation that highlights multiple influences from within the individual and external to the individual to combine in enhancing the survival and well-being of individuals in adverse life situations. Both of these models indicate that behaviour is a multifaceted phenomenon, based on the interplay between individual, environmental and socio-cultural factors. Secondly, the models suggest that an individual's behaviour is influenced by multiple levels of influence. As applied to my study, I would expect my independent variable(s) at the individual (self-efficacy, education), family (parent-child communication, family structure) and community level (access to contraceptives, economic deprivation) to influence or explain positive behaviours among youth because in order for youth to make a successful transition into adulthood, interactions both within and between these interrelated social contexts become significant.

2.1.1. Ecological Systems Theory

In terms of a theoretical perspective for studying protective sexual behaviours among youth in Nigeria, Urie Bronfenbrenner's Ecological Systems Theory provides a useful framework. This theory views the process of youth development as shaped by the interaction between individuals and their environment. The specific path of development, results from many levels of environmental influences that can affect a person such as their parents, their friends, school, work, community, and culture (Bronfenbrenner, 1992).

The ecological systems theory as shown in Figure 1.1, explains the multiple levels of influences which interact across each of the different systems and uses this language of systems; micro, meso, and macro systems to refer to the different types of influences. Specifically, Bronfenbrenner's theory acknowledges the interactions between these different influences, and how one can influence the other, which he refers to explicitly as the meso system. For instance, a parent who is divorced or separated can become stressed as a result of financial responsibilities or workload which may affect time spent with youth. This may influence youth development at the family level which highlights the importance of factors at different levels for the individual.

This framework also addresses the broad social, cultural and economic contexts in which youth grow up. These include the overall economic development of the country, but also where in their country a young person may be growing up. In many LMICs, Nigeria for example, the health and development of young people vary by place of residence. There is usually a marked variation in the sexual behaviours of youth in urban settings compared to their counterparts in poor rural settings. The cultural and religious values in different parts of the country also have an effect on identities of youth, which eventually constructs youth health behaviours.

However, the ecological systems theory did not include biological processes that relate to the individual, but paid more attention to the social, interpersonal, institutional, and cultural influences (Merrin, Hong, & Espelage, 2015). Recognizing the importance of biological processes in youth development, Bronfenbrenner acknowledged biology as a key component in youth development that could influence youth sexual behaviour. He also added the dimension of time due to the life course perspective in youth development, which he terms the chronosystem. One of the challenges with the ecological systems theory is that it does not consider interactions that may occur concurrently at different levels. For instance, what happens to youth behaviours when risky factors at the family level come in touch with protective factors at the school or community level?

The theory also presents risk and protective factors that foster or inhibit youths' likelihood of engaging in protective sexual behaviour at the family, peer, school, and neighbourhood levels. More specifically, individuals are nested in their families, which can affect their relationships with their friends and peers. The peer group is embedded in the school environment, which is a part of neighbourhood, which includes individual youths, their families, their peer groups, and their schools.

Furthermore, the principles of ecological systems theory have been applied to a wide range of behaviour such as substance use (Choi, Watt, Skinner, Kalichman, & Sikkema, 2015), condom use (Dietrich et al., 2013; Protogerou, Flisher, & Wild, 2014) and sexual debut (Amoateng & Kalule-Sabiti, 2016; White & Warner, 2015).

Explaining ecological systems theory, Harper et al. (2013) considered four classes of variables representing different levels in the ecological systems theory: intrapersonal factors, interpersonal factors, community factors and cultural policy. They propose that the different factors operate through bi-directional interactional processes between the youth and their environments, recognizing

the interrelatedness of each level and its interaction with the individual in rural Kenya.

In their study, at the intrapersonal level, their participants noted that youth in the community had low levels of knowledge about HIV/AIDS and lack of knowledge about condoms. Positive peer pressure, parent-child relationship were factors associated with promoting health sexual behaviours among youth at the interpersonal level while transactional sex and lack of role models in the community were factors associated with risk and resilience among young people at the community level. At the macrosystemic level, some cultural beliefs such as abstinence and "honouring virginity" were also found to be associated with protective sexual behaviours among young people.

2.1.2. Risk and Resilience Framework

In a risk and resilience framework, protective factors are resources that promote resilience by reducing risk or by buffering the impact of stress on well-being. Studies have identified models of resilience to explain how individual and environmental factors function to promote protective behaviours (Fergus & Zimmerman, 2005; Garmezy, Masten, & Tellegen, 1984; Zimmerman & Arunkumar, 1994). Three models that define the influence of pressure and personal characteristics have been suggested (Garmezy et al., 1984). They include; (a) compensatory model, (b) challenge model, and (c) protective factor model. They opine that protective factors fall into three domains: (a) individual characteristics, (b) family characteristics, and (c) community characteristics.

2.1.2a. The Compensatory Model

According to Garmezy et al. (1984), a compensatory factor nullifies the influence of risk factor on a particular outcome or operates in the opposite direction of a risk factor. This implies that protective factors are most obvious when experienced within a context of risk, exerting a direct and independent influence on the outcome and does not interact with a risk factor (Brody et al., 2001). For

instance, poverty is a risk factor and the compensatory factor for it could be parental monitoring, which has an opposite but main direct effect on the outcome (sexual behaviour). The direct effect of parental monitoring would predict engagement in protective sexual behaviour among young adults. According to Wang, Zhang, and Zimmerman (2015), this model is tested by examining the unique, direct effects of the risk and compensatory variable in a multiple-regression analysis or with structural equation modelling (Michielsen et al.). The compensatory effect of family structure has been established by Roche and Leventhal (2009) in their work on adolescent early sexual debut where positive parental practices was a protective factor for early sexual debut among adolescents living in more disordered neighbourhoods.

2.1.2b. The Protective Factor Model

The protective factor model suggests that assets or resources moderate or reduce the negative effects of adversity on youths' development (Zimmerman, 2013) . In this model, protective factors operate in an interactive fashion to buffer an individual from the negative effects of risk exposure. Two possible protective models are risk-protective and protective-protective. Risk-protective models indicate that promoting factors operate to moderate or reduce the association between risks and negative outcomes. Protective-protective models operate to enhance the effects of either promotive factor alone for predicting an outcome. This model can be examined by analysing an interaction effect between risk and promotive factors for predicting sexual behaviour. This has been confirmed by various studies (Caruthers, Van Ryzin, & Dishion, 2014; Kao & Carter, 2013) which have documented the protective effect of family structure in the sexual behaviour outcomes of youth.

2.1.2c. The Challenge Model

This is also known as the inoculation model. The model proposes that, if the youth has been exposed to low levels of risk, later risk exposure can lead to a lower level

of negative consequence. Risk is treated as a possible enhancer of competence, provided the amount of stress is not extreme. Thus, a low level of previous exposure to risk can provide youth with the effect of an inoculation. Too little risk, however, may not prepare youth for the possible greater adversity they may face as they become young adults. Similarly, too much risk may pose too much difficulty from which to recover (i.e., to be resilient). However, moderate levels of stress provide the individual with a challenge that, when overcome, strengthens competence. Youth become more prepared to face increasing risk as they successfully overcome low levels of risk (Fergus & Zimmerman, 2005). With continued exposure to adversity as youth age and mature, their capacity to develop positively despite risks increases. In terms of data analysis, the inoculation model implies the presence of a second-order term in a multiple-regression equation, which can explain the nonlinear relationship between risk and the adolescent outcome. Also, the model requires longitudinal data (Zimmerman & Arunkumar, 1994).

However, the risk and resilience framework has been associated with some limitations. Scholars explain that positive behaviours may not be constant and can change during the life-course of youth (Fletcher & Sarkar, 2013). This is because individuals may not react to the same way to different events. It is possible that resilience is altered when circumstances change. This calls for a continuous examination of resilience among youth. They add that context matters and the effect of protective factors may differ for different youth in varying situations. Failure to explore resilience in different cultural settings may result to seeing resilience as a static phenomenon relevant to a specific group in certain circumstances. Another limitation of these models is that they have been based on research in developed settings like the United States and Europe and only few studies such as Kabiru et al. (2012) have looked at Kenya where social and structural drivers may differ from those in the Nigerian context.

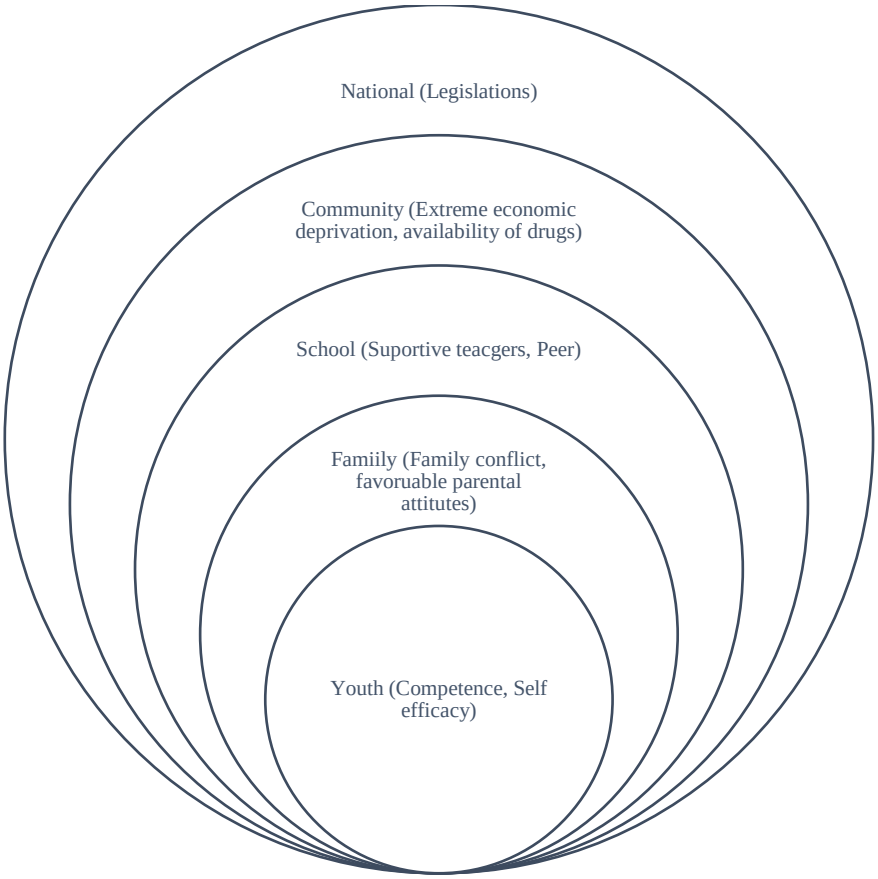

Figure 1.1: Ecological Systems Framework by Bronfenbrenner (1979)

2.2. Conceptual Framework

In the application of ecological systems theory and the risk and resilience framework to this study, I will refer to the social determinants of sexual behaviour as the conditions in which youth are born, grow, live, work and age. The model takes the shape of an onion (Figure 1.1) which shows the interrelationship between each of the systems. Knowledge of contraceptives, religiosity and self-efficacy exist at the intrapersonal level, family conflict, favourable parental attitudes and family structure exist at the interpersonal level, the school level includes academic achievement, lack of commitment to school and involvement in extracurricular activities, while the community level variables would include community norms, availability of recreational resources, economic deprivation

and residential mobility. At the national level, there may be laws put in place to protect youth SRH (e.g. minimum age at marriage laws).

In the conceptual framework, some variables compensate for other variables that could act as risks for the sexual behaviour of youth. For instance, self-efficacy at the individual level can neutralize or counteract the effects of residential mobility, which is a risk factor at the community level. Also, at the individual level, there is a relationship between youth demographic and individual protective behaviours. Some studies have concluded that girls are more likely to be religious compared to boys (Haydon, Cheng, Herring, McRee, & Halpern, 2014; Hvidtjørn, Hjelmborg, Skytthe, Christensen, & Hvidt, 2014). This may have effects on their engagement in protective sexual behaviours. Youth from families that have experienced divorce or separation may be more likely to engage in risky sexual behaviour but presence of role models in the community may influence their behaviours and encourage them to engage in protective sexual attitudes.

Furthermore, national laws may in principle protect youth SRH. However, statutory laws and understanding of religious and community values determine whether or not these laws are implemented at a community level. For example, in Nigeria, the legal age for marriage is 21 years (United Nations, 2013) but in Northern Nigeria where Sharia is practiced, child marriage is still practiced. This violates the Convention on the Rights of the Child. However, family structure can act as a protective factor that prevents youth from being married off an early age. In addition, parent-child communication can also buffer or moderate the negative influence of peers at the community level.

At the community level, while rural to urban migration is typically associated with perceptions of greater opportunities for education and employment for the young, there are also risks to health. These risks can result from the breakdown of the capacity of families and communities, resulting in failure to provide a safe and supportive environment for young people.

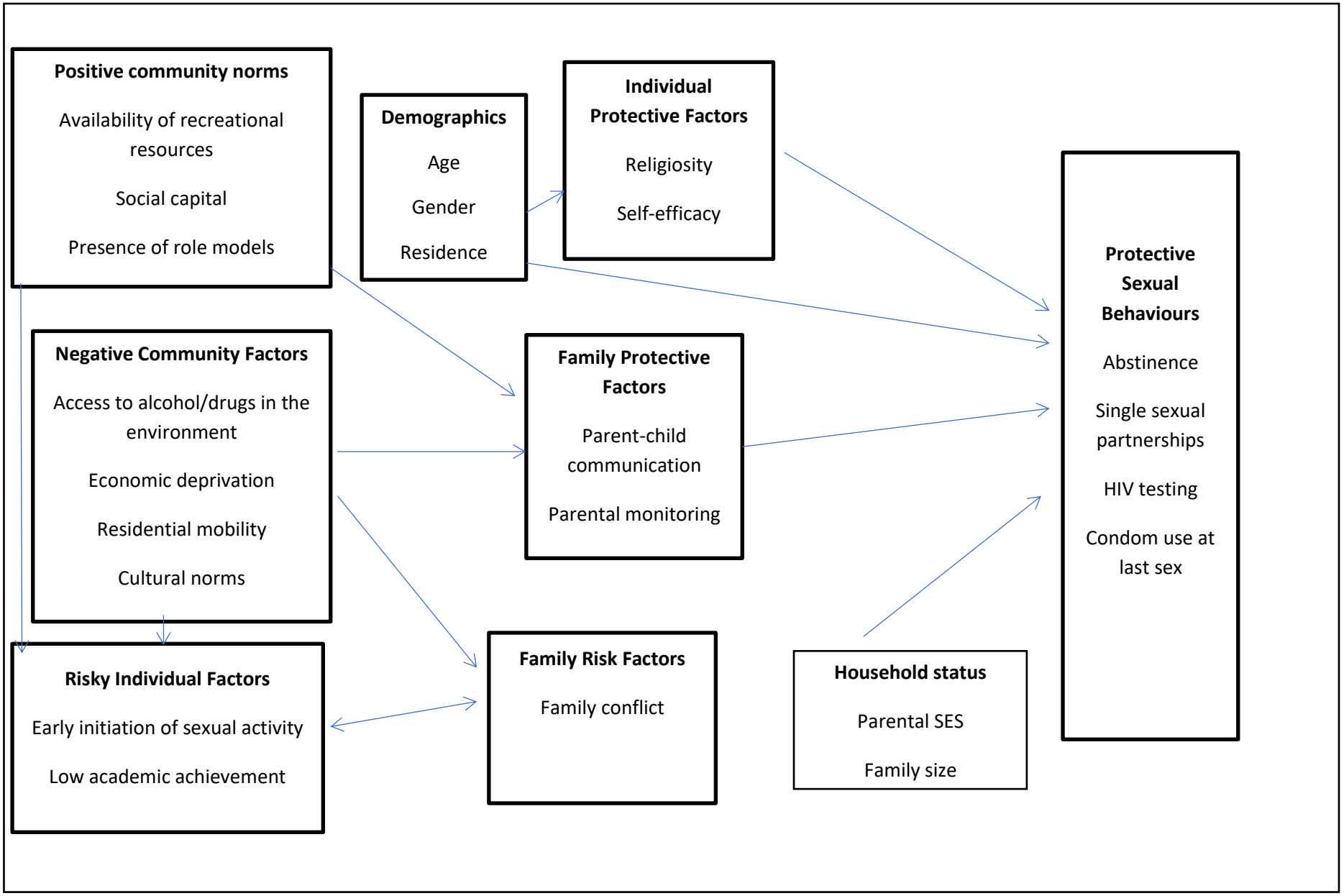

Figure 2.1: Conceptual framework of the relationship between individual, household and community factors in youth positive sexual behaviour (adapted from Bronfenbrenner (1979) and Fergus and Zimmerman (2005)

Or, due to greater risks that result from large numbers of people living at close quarters, such as road traffic accidents, interpersonal violence, social alienation, stress, and the impact of thwarted expectations, especially around employment or relationships; this can contribute to increased sexual health risks for youth. It is much harder and often impossible for women to negotiate for safer sex, for example, if they live in an environment of violence or fear of violence, which is more common in the context of population displacement. But presence of social capital in form of clubs and groups may act as protective factors which may lead to protective sexual behaviours. Also, individual knowledge of risk can operate as a protective factor and enable youth engage in protective sexual behaviour in such settings.

2.3. Research Hypotheses

The hypotheses tested in this study are as follows:

i. Females are more likely to engage in protective sexual behaviours compared to males;
ii. Youth living in rural areas are more likely to engage in protective sexual behaviours compared to their counterparts in urban areas;
iii. High socio-economic status is associated with increased likelihood of protective sexual behaviours among youth;
iv. Highly religious youth are more likely to engage in protective sexual behaviours;
v. Family structure will act as a compensating factor in the presence of economic deprivation for youth protective sexual behaviour;
vi. High community social capital is significantly associated with high levels of youth protective sexual behaviour.

2.4. Rationale for the Hypotheses

The hypotheses above were derived from the reviewed literature and the conceptual framework. As pointed out earlier, religion, gender, family structure, social capital and at the family and community level and community

wealth status were all shown in the literature to be important determinants of protective sexual behaviour among youth.

CHAPTER 3

METHODOLOGY

This chapter outlines the methodological approach to answering the research gap. Firstly, I will explain why qualitative, in-depth interviews part of my data collection technique were, and why I then triangulated qualitative with quantitative data. Secondly, I elaborate on my choice of target group, the recruitment process, pilot testing, fieldwork and data collection, data analysis, ethical considerations, reflexivity and issues of research rigour.

I outline the research questions this study sought to answer:

- What are the levels, trends and patterns of positive sexual behaviour among youth in Nigeria?
- What are the various characteristics (individual, family, school and neighbourhood) associated with positive sexual behaviours among youth in Nigeria?
- What are the mechanisms through which protective factors influence positive sexual behaviours among youth in Nigeria?
- Why youth choose to engage in positive sexual behaviours in Nigeria?
- How do youth manoeuvre the challenges of everyday life in the face of extreme sexual vulnerability?

3.1. Study Area

Nigeria with a population of approximately 180 million people is a diverse society with a number of religions and tribes. Nigeria is Africa's most populous country and religion is an important phenomenon in the country as it affects every segment of the Nigerian society. There are basically three major religions in Nigeria i.e. Christianity, Islam and African Traditional Religion and their practice varies regionally. Cultural differences also exist among these religious groups which influence their sexual behaviours. Protestantism and

local syncretic Christianity are evident in the Yoruba areas of South West Nigeria, while Catholicism dominates Igbo and closely related areas in the Eastern part. A large number of people in the Northern part of Nigeria practice Islam and majority of people in the middle belt are Christians. Currently, there is a new wave of Pentecostalism which has attracted the young people (Smith, 2004). For ease of administration, Nigeria is divided into 36 states and Abuja, the federal capital territory. These states are then grouped under 6 geopolitical zones. The study took place in four states one apiece from four of the six geopolitical zones. The rationale for selection was purposive. This selection was done by examining the prevalence of protective sexual behaviours among youth in Nigeria using the 2013 Nigeria Demographic and Health Surveys (NDHS, 2013). These behaviours include; abstinence (primary and secondary), condom use at last sex, HIV testing and single sexual partnerships. States which had the highest prevalence were selected from the three major ethnic groups (Hausa, Igbo and Yoruba) and a control state was selected from a minority ethnic group.

3.2 Research approach and design

Based on my research questions, and trying to get an in-depth knowledge of why young people engage in protective sexual behaviours even in the face of risk, I decided to use a concurrent triangulation design which is a type of mixed method design. Mixed methods research is defined as a methodology for conducting research that involves collecting, analyzing, and integrating (or mixing) multiple modes of research (and data) in a single study or a longitudinal program of inquiry. Often mixed methods will combine quantitative and qualitative research methods with the understanding that in combination, mixed methods can provide a better understanding of a research problem or issue than either research approach alone (Creswell & Clark, 2007; Patten, 2017). The 'quantitative approach' of demography has contributed to literature in the past by defining issues which could be health or social (what)

and determining the magnitude of these issues according to time, place, and person characteristics (when, where, and who) as well as examining the causes of these problems (why and how). However, new methodologies have been developed for understanding the complex social phenomenon related to human behaviour and, 'qualitative approach' has gained ground as a valid method for comprehending the 'social reality' as it exists (Kaur, 2016). This is because qualitative approaches rely on gaining an in-depth understanding of the social phenomenon, that is, why and how of human behaviour or decision making, rather than finding out only the what, when, where, and who aspects of the behaviour, by using research methods which rely more on unstructured interviews, focus group discussion (FGD), case study and participant observation (Kaur, 2016). A number of studies (Jewkes, Wood, & Duvvury, 2010; Mojola, Williams, Angotti, & Gómez-Olivé, 2015) have supported the use of mixed methods in demographic studies as qualitative data helps to contextualize quantitative findings (Ruark & Fielding-Miller, 2016).

Therefore, mixed methods have been chosen because it uses both quantitative and qualitative approaches, thereby each compensating for the limitations of the other. Also, it provides a sophisticated, complex approach to research that appeal to those on the forefront of new research procedures. It also gives a clear understanding in knowing why youth engage in positive sexual behaviours. The use of in-depth interviews from selected youth from different communities in Nigeria can help improve the validity of quantitative analyses by understanding how resilience influences youth sexual behaviours. In addition, mixed methods approach bases the inquiry on the assumption that collecting diverse types of data best provides an understanding of the research problem. The study begins with a national representative survey in order to generalize results to a population and the focuses in a second phase, on detailed qualitative, open-ended interview to collect detailed views from participants.

Concurrent triangulation design

The main reason I chose this design is to get different but corresponding data on the sexual behaviour of youth in order to answer my research question. The use of this design also helps complements the strengths and weaknesses of quantitative methods (large sample size, trends, generalization) with those of qualitative methods (small N, details, in depth). The mixed method design was carried out in three phases. The main purpose of this design was to use quantitative findings to select study sites in Nigeria for the qualitative approach. Another questionnaire was also used to measure indicators that were not in the national dataset. This third phase of the data collection was collected at the same time with the focus group discussions and in-depth interviews.

The first phase involved using DHS data to determine the levels and patterns of protective sexual behaviour among youth in Nigeria. This phase was also used to identify the characteristics associated with protective sexual behaviours among youth in Nigeria. The study sites selected were based on their high prevalence of protective sexual behaviours compared to the other states.

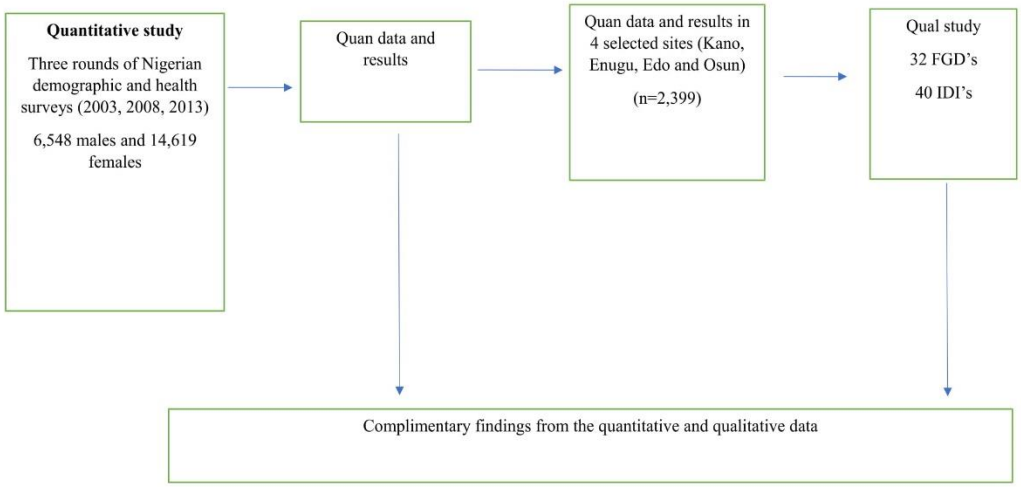

Figure 3.1: Phases of study design

3.2.1 Phase One

This study phase used of an analytical cross-sectional study through the analysis of secondary datasets of the 2003, 2008 and 203 Nigerian Demographic and Health Surveys. The Nigerian Demographic and Health Surveys elicited information on demographic and health indicators both at the national and state levels. The primary sampling unit (PSU) which was regarded as a cluster for the three survey years and was defined on the basis of Enumeration Areas (EAs). While the 2003 NDHS adopted the Enumeration Areas designed for 1991 population census, the 2008 and the 2013 NDHS utilized the Enumeration Areas designed for Nigeria 2006 population and housing census. Samples for the two surveys were selected using stratified two-stage cluster design consisting of 365 clusters for 2003 NDHS (NPC and ORC Macro, 2004), 888 clusters for 2008 NDHS (NPC and ICF Macro, 2009) and 904 clusters for 2013 NDHS (NPC and ICF Macro, 2013). Data were gathered from 7,620 women and 2,346 men aged 15-49 in 2003, 33,385 women and 15,486 men aged 15-49 in 2008 and 38,948 women and 17,359 men aged 15-49 women in 201.

One of the many fortes of the NDHS is its multistage probabilistic sampling methodology which involves the selection of 'clusters' and households from geographic-based sampling frames that the country. This design explains naturally occurring population hierarchies and allows present analysis to differentiate between community-level and individual-level factors that may influence the distribution of protective sexual behaviours. Furthermore, the core DHS questionnaire has been unvarying and consistent which allows for comparisons across populations for a long period of time. Additionally, it has country wide coverage, high response rates which usually surpass 90%, standard data collection procedures and interviewer training ensure reliability which have helped capture the health situation in a several developing countries. Finally, the scope of data such as; demographic, social, wealth and health indicators which could be measured as self-reported is

another strength of the DHS data. This allows in-depth exploration of the data, that looks beyond the frequency and examines complex fundamental relationships or associations between social characteristics and health (Corsi, Neuman, Finlay, & Subramanian, 2012).

3.2.1.1 Study Population

The relevant data for this study; unmarried males and females age 15-24 years were extracted from the whole 2003, 2008 and 2013 NDHS datasets. Individuals were the unit of analysis.

3.2.1.2 Study sample size and inclusion criteria

The full sample size has been reported in appendix 1. All unmarried males and females aged 15-24 were included in the analysis.

Table 3.1: Sample size of study population and survey years

Survey Year	Females		Males	
	Sample Size	Sample analysed	Sample Size	Sample analysed
2003	7,620	1,684	2,346	827
2008	33,385	6,939	15,486	4,537
2013	38,948	7,743	17,359	6,123

3.2.1.3 Variables and Variable Measurements

3.2.1.3 Dependent Variables

In this research, the outcome variables measure protective sexual behaviour, which have been defined as healthy sexual behaviours that protect youth from risk of unplanned pregnancy, STI's and other negative health outcomes. The choice of these variables were informed by measurements of the variable in the DHS and the selected theoretical frameworks. Although condom use has often been the outcome variable for most studies on youth sexual behaviour

due to a number of programs that lay emphasis on HIV prevention strategies, we focus on a few more variables. Protective sexual behaviour was measured by a number of sexual behaviour variables which include: ever had sex where respondents were asked if they have ever had sexual intercourse; condom use at last sex, single sexual partnership and HIV testing.

In the DHS, a question was asked from youth on if they have ever had sex, tested for HIV or used condom at last sexual intercourse. Responses ranged between yes and no. Respondents were also asked about the number of sexual partners they have including their sexual partner which was a numeric response. On abstinence, I looked at primary abstainers and youth who were sexually experienced but no recent sexual activity. This is because some youth may decide to abstain after first sexual intercourse in order to avoid STI's or unwanted pregnancies. Therefore, primary abstinence was defined as youth who have never had sex while recent abstainers was measured as youth who have not been sexually active in the last four weeks.

Independent variables

The independent variables were selected based on reviewed literature and the theoretical foundation established from the reviewed literature which included demographic and socio-economic characteristics at the individual, family and community level.

The following individual level factors were included: Age, place of residence religion, ethnicity, region, educational attainment, work status, exposure to mass media and HIV knowledge.

A UNICEF report stated the need for sex and age disaggregated data on adolescent developmental outcomes based on the paucity of data on these components in a number of countries (UNICEF, 2016). This is because disaggregated data by different demographic and socio-economic

characteristics will help existing and new program efforts monitor progress and tailor new efforts that will help improve youth health outcomes.

I controlled for age because abstinence at different age groups may mean different policy interventions. I also expect abstinence to differ among age groups as other studies have found. For example, studies in the United States among young adults found that 87% of boys report being abstinent at age 15, but by age 19, only three out of every ten continue to report abstinence (Abma, Martinez, & Copen, 2010; Martinez, Copen, & Abma, 2011).

For instance, young adults aged 15 who are primary abstainers may be as a result of lack of opportunity compared to primary abstainers at age 21 or 24. Disaggregating by age will allow us understand the ways in which different youth might resist societal pressures for early sexual intercourse.

The association between HIV knowledge and youth sexual behaviour remains inconclusive. This is because some studies have shown that youth with high HIV knowledge still engage in risky behaviours while it is expected that low knowledge results in lower likelihood of protective sexual behaviours. This motivates the reason for including this variable in this study.

Some household level factors that were considered include; sex of household head and wealth status. Youth from poor households have been shown to be at particular risk of sexual risk taking, with their economic status motivating them to partake in transactional sex and serving as another limitation in their negotiating power with respect to condom use (Ajayi & Somefun, 2019; Luke, 2003). It is also possible that youth from poor households may not be able to afford lifestyles that may expose them to risky behaviours, thereby allowing them to abstain or have single sexual partners. We also controlled for another household characteristic which is sex of the household head because some studies have found that youth living in household headed by females may not be as disciplined as their counterparts in male headed households. The mechanism in which this occurs could be through lesser hours the mother spends with the youth to monitor youth activities.

Although the importance of studying community level factors for demographic outcomes have been extensively addressed (Odimegwu, Somefun, & De Wet, 2017) , the role of the community in shaping youth sexual behaviours has been largely overlooked. This can be partially attributed to the paucity of data. However, a seminal paper (Billy, Brewster, & Grady, 1994) on the contextual determinants of adolescent sexual behaviour using access to reproductive health services at the community level and social opportunities available in a community established a relationship between these variables and adolescent sexual behaviour. In SSA, some other studies (Kaufman, Clark, Manzini, & May, 2004; Somefun & Odimegwu, 2018b) have looked at community socio-economic factors and youth sexual behaviour with a less focus on other cultural factors at the community which this study has controlled for.

Also, the community variables have been looked at as predictors of risky sexual behaviour but this study will explore how community variables could act as protective factors in the lives of youth. For instance, a socio-economically disadvantaged community with a high proportion of uneducated and unemployed individuals may result to a sense of ineptness and state of lethargy among the youth adults in that community. This may eventually lead to risky sexual behaviours. However, it is possible that youth from these disadvantaged neighbourhoods decide to beat the odds and engage in protective behaviours to reduce their chances of being like most people in their community.

The neighbourhood variables included are; ethnic diversity, community education, community poverty, proportion of women engaging in single sexual partnerships in the community, proportion of women who tested for HIV in the community and community media exposure. All neighbourhood characteristics were created from the individual-level and household-level variables. Using Stata software, individual and household-level variables were aggregated at the level of primary sampling unit to create the community-level variables of interest. For example, the decision to create the community

variables considered in this study was based on the understanding obtained from the reviewed literature. These variables are defined in the table below:

Table 3.2: Definition of variables

S/N	Variable	Definition	Coding
Outcome Variables			
1	Abstinence	Primary abstinence – measured as respondents who have never had sex. Recent abstainers – measured as respondents who have had sex but have not had sex in the last four weeks.	Categorical variable which was regrouped into "1" Primary abstinence, "2" Recent abstainers and "3" Sexually active
2	Single sexual partners	Number of sexual partners	Continuous variable which was categorized as "1" if respondent didn't have any other sexual partner apart from current sexual partner and "0" otherwise.

Table 3.2 *(cont.)*: Definition of variables

S/N	Variable	Definition	Coding
Outcome Variables			
3	HIV Testing	Respondent test for HIV	Respondents who had ever tested for HIV were measured as "1" and "0" otherwise.
4	Condom use at last sex	Respondent's use of condom at last sex	(1) Yes (0) No
Predictor Variables			
1	Age	Age of respondent	Continuous variable categorized as "15-17" and "18-24"
2	Place of residence	Respondent's place of residence	(1) Urban (2) Rural
3	Religion	Respondent's religious affiliation	(1) Catholic (2) Other Christian (3) Islam (4) Others
4	Ethnicity	Respondent's ethnic affiliation	(1) Yoruba (2) Igbo (3) Hausa (4) Fulani (5) Ijaw (6) Others
5	Region	Respondent's region of residence	(1) South West (2) North Central (3) North East (4) North West (5) South East (6) South South
6	Educational attainment	Highest level of education attained	(1) No education (2) Primary (3) Secondary (4) Higher
7	Work status	Respondents work status	(1) Not working (2) Working
8	Exposure to mass media	Respondents exposure to TV, radio and print media	(1) No (2) Yes

Table 3.2 *(cont.)*: Definition of variables

S/N	Variable	Definition	Coding
Predictor Variables			
9	HIV Knowledge	Respondents assessment of comprehensive knowledge of HIV and AIDS. Comprehensive knowledge is defined as knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chances of getting the AIDS virus, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission (that the AIDS virus can be transmitted by mosquito bites and that a person can become infected by sharing food with someone who has the AIDS virus).	(1) High (2) Low

Table 3.2 *(cont.)*: Definition of variables

S/N	Variable	Definition	Coding
Household Variables			
1	Wealth status	Wealth tertile of the household	(1) Poor (2) Middle (3) Rich
2	Sex of household head	Sex of household head	(1) Male (2) Female
Community Variables			
1	Community education	Proportion of women who had at least secondary education in the community	(1) low (2) High
2	Community poverty	Proportion of women in the poor wealth quintile	(1) (1) low (2) High
3	Ethnic diversity	The extent of diversity in the community where respondents live in terms of ethnic composition	(1) Homogenous (2) Heterogeneous
4	Community SSP	Proportion of women engaging in SSP in the community	(1) low (2) High
5	Community HIV testing	Proportion of women testing for HIV in the community	(1) low (2) High
6	Community media exposure	Proportion of women exposure to mass media in the community	(1) low (2) High

A primary data collection took place in the study site to measure some variables of interest that could not be measured in the NDHS. Some of these variables include: self-efficacy, parent's religious affiliation, presence of parents in the household, parent-child communication, parental monitoring, living arrangement, presence of a role model, same sex school attendance, school management type, social capital and availability of recreational resources in the community.

Social capital refers to the internal social and cultural coherence of society, the norms and values that govern interactions among people and the institutions in which they are embedded. In this study, trust, access to groups and networks have been used as a measure of social capital in communities studied. These measures include: generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people; most people in this village/neighbourhood are willing to help if you need it; in this village/neighbourhood, one has to be alert or someone is likely to take advantage of you.

Self-efficacy has been described as having the self-confidence to perform a particular behaviour (Bandura, 1997), and high self-efficacy for condom use has been consistently associated with consistent condom use (Asante, Osafo, & Doku, 2016; Leddy et al., 2016). Self-efficacy may also be associated with primary or secondary abstinence because the concept of self-efficacy is an important component of sexual behaviours (Bandura, 2004). Measures of self-efficacy in this study include; would you be able to avoid sex any time you did not want it, would you be able to use a condom every time you have sexual intercourse, would you be able to negotiate condom use during sex after you have gone out drinking, and would you be able to decline sexual intercourse with your partner if partner will not use a condom, would you be able to talk about using condoms with your partner? Response scores ranged from 1 to 4 for each question in the self-efficacy index, resulting in a 20-point scale (Cronbach α of 0.74 for females and 0.70 for males). Youth who had a total self-efficacy index score of 16 to 20 (ie, on average, answered "yes" to each of the 5

self-efficacy questions listed above) were categorized as having "high self-efficacy," and those with a score less than 16 were categorized as having "low self-efficacy." We chose this cutoff because high self-efficacy would be reflected in affirmative (yes) answers to each question.

Parent-child communication was measured as "ever discussed sexual matters with mother" and "ever discussed sexual matters with father". Parental monitoring was measured by a number of questions: do your parents ask you to tell about things that happened in your leisure time, do you need your parents' permission about what you're going to do on a Saturday evening, how often do your parents try to watch your whatsapp/chat conversations, how often do your parents sniff around your personal belongings without your permission and do your parents demand you to tell them where you are, what you do and with whom with your time?

Presence of a role model was included because research has shown that young people's protective mechanisms may be strengthened by the presence of a role model, which could be a favourite teacher, caring neighbour, religious leader, or even parent or boyfriend or girlfriend at the community level (Ombati & Ombati, 2016). Role models could also model risk behaviours as documented by (Ndugwa et al., 2011). In this study, role models included were: aunty, brother, family friend, grandparent, other, religious leader, sister, teacher and uncle. Youth who mentioned "other" listed some celebrities as their role models while some of them said their boyfriends were their role models.

3.2.1.4 Data Analysis

This section describes data analysis employed for the different objectives. The objectives have been listed and the type of analysis follows each objective. Three levels of analyses were employed to address three objectives which aimed:

- to describe the levels and patterns of positive sexual behaviour among youth in Nigeria.
- to identify the various characteristics (individual, family, school and neighbourhood) associated with positive sexual behaviours among youth in Nigeria.
- to explore the mechanism through which protective factors influence positive sexual behaviours among youth in Nigeria.

The first objective was addressed using frequencies and cross-tabulations to identify the distributions of the dependent variables (abstinence (primary or secondary), condom use at last, single sexual partnerships and HIV testing) by selected independent variables at both individual and community levels (for instance age, religion, education, work status, household economic status, and other variables).

The second objective was addressed using appropriate inferential statistics. The chi square test of association was used to test the statistical significance of these bivariate distributions of the dependent variables across the independent variables. Secondly, multivariate analyses were performed using logistic regressions and multinomial regression to show the adjusted and unadjusted effect of each independent variable on the selected outcome. Analysis of the selected protective sexual behaviour outcome had three models. The first model included the individual characteristics and the outcome, second model included household characteristics and the outcome while the third model, which was a full model incorporated the individual, household and outcome variables together. For abstinence, a multinomial regression was used because of the nature of the outcome (three categories). Multinomial logistic regression is a simple extension of binary logistic regression that allows for more than two categories of the dependent or outcome variable. Like binary logistic regression, multinomial logistic regression uses maximum likelihood estimation to evaluate the probability of categorical membership. The other outcomes were dichotomous in nature with possible responses of 'yes' or 'no'. At this stage, only the individual and

household variables were entered in the model to establish their direct effect on protective sexual behaviour. Representation of the model is as follows (Goldstein, 2011):

$$log\frac{\pi ij}{(1-\pi ij)} = \delta 0ij + \sum \delta ij\ \omega\ ij = 1\ zij + ij + Uj \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: πij = probability of engaging in protective sexual behaviour for the ith individual in the jth community, δ are parameters of the model, z are regressors, εij are the residuals for individuals, and Uj is the community residual also known as the random intercept.

The third objective was addressed by examining interactions among some of the individual, community variables and the outcome. Literature has established that adding interaction terms to a regression model can greatly expand understanding of the relationships among the variables in the model and allows more hypotheses to be tested.

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Results were interpreted as odd ratios (OR) with OR>1 indicating a higher risk, OR<1 indicating a lower risk and OR=1 indicating no risk difference. The level of significance was set at 0.05, and a confidence interval (CI) of 95% was used. All analysis at the univariate, bivariate and multivariate was done using Stata statistical package (version 15). To account for oversampling of some sections of the population, weighting factor provided by Measure DHS was applied in data management and analysis, where necessary.

Multilevel Modelling

Most statistical methods assume that observations in the dataset are independent of each other, but when groups of observations share some common features or have information at different levels (for instance individual, community and region), they are no longer independent (Vu, 2005). This kind of data is therefore called hierarchical data. The DHS dataset has a

hierarchical structure with women living within households and households located within communities, thus violating the assumption of independence of ordinary (linear) logistic regression models (Stephenson et al. 2006).

3.2.1.5 Ethical Considerations

This phase made use of secondary data. There was no identifying information in the dataset. This implies that anonymity and confidentiality of the study respondents were guaranteed. In addition, ethical permission for the use of the Nigeria Demographic and Health Survey had already been obtained from ICF Macro Inc., USA.

3.2.1.6 Limitations of the study and data quality

The study draws on a cross-sectional secondary dataset; as a result, there is tendency for sexual behaviours to be under-reported among females and over-reported among males. Also, cause and effect relationship could not be determined based on the data.

3.2.2 Phase Two

The second phase involved the use of focus group discussions and in-depth interviews to explore the perception of youth concerning sexual behaviours in selected study sites. To get a better understanding of the participants' socio-demographic backgrounds and attitudes towards protective sexual behaviours, I triangulated my qualitative data against a short quantitative questionnaire, which mainly addressed my participants' socio-demographic background, as well as addressing their attitudes and behaviours towards sexual behaviours. I elaborate more on this below

Based on the sensitivity and privacy issues related to my research topic, situated in a considerably traditional social context, I found that the most appropriate method for data collection was conducting one-to-one in-depth

interviews with the participants. In-depth interviews are appropriate for sensitive topics, especially when the researcher aims to know in depth about the participants' experiences and individual stories (Hennink, Bailey, and Hutter, 2011). This one-to-one method facilitates confidentiality and privacy while exploring the participants' perceptions and encouraging them to talk about their stories, values, and beliefs. The use of IDIs increased the opportunity for building trust between the participants and I, in addition to me being able to introduce new topics of inquiry (Creswell & Poth, 2017). Studies of individual sexual behaviour typically use in-depth interviews (Flouri et al.) rather than focus group discussions (FGDs). The privacy and confidentiality of IDIs encouraged participants to share their personal opinions on the topics discussed, whereas FGDs captured data on community norms, or what FGD participants believed to be socially acceptable to say in front of others (Hennink, Hutter, & Bailey, 2010; Maxwell, 2012).

I adopted a semi-structured format for my interview questions to ensure some level of consistency in covering the main themes I aimed to tackle in every interview. At the same time, I allowed myself the flexibility to ask my questions in a different way or with a different wording or in a different order. The order and wording of the questions were determined by the interaction dynamics and interview flow I perceived with the different participants. No single interview ran similarly to another. I stopped interviewing when I reached data saturation, and the themes started to become repetitive. The semi-structured format helped me generate a list of similar codes, and extract a number of common themes across all the interviews at the analysis stage. This phase also informed the modification of another quantitative research instrument.

3.2.2.1 Target group and inclusion criteria

My Focus group participants comprised never-married Nigerian young adults, both males and females, aged between 15 and 24 years, in or out of school, different religious backgrounds and geographically diverse (urban, rural and suburban areas). Both sexually experienced and not sexually experienced

youth were included in the sample, as the views of both were equally important for my study.

3.2.2.2 Target group and inclusion criteria

I collected my data between February 2018 and June 2018. A combination of sampling strategies was utilized. I employed a stratified purposive sampling because the quantitative data had informed of some of the characteristics of youth engaging in protective sexual behaviours. Therefore, I concentrated more on rural areas and local government areas that had a high prevalence of protective sexual behaviours. Thereafter, youth were recruited through personal social connections followed by a snowballing technique. I also asked a number of social and professional contacts, who were in direct contact with university students, either through their work at civic non-governmental organisations (NGOs) or through their work at study centres, to put me in contact with a number of university students. These were to be students who helped me identify youth in their locality who may have been interested in my study. I was careful in the way I introduced my research to recruiters, as I did not want it to seem as if it merely focused on youth engaging in protective sexual behaviours alone. I kept reiterating that it was for my doctoral study and not for any faith based organizations. This is because a number of them assumed I worked for a religious organization based on the sexual behaviour questions. I explained to my contacts, who were helping me in the recruitment process, that I was interested in recruiting never-married youth, of any religious sect, regardless of their sexual experiences. I explained that I was interested in both educated and uneducated, as long as the youth were between the aged of 15-24. When we identified youth who were below the age of 18, we asked if we could meet their parents or guardian in order to seek consent. We made appointments with these particular youths in order to meet their parents or guardian.

I also explained that my current research study only focused on heterosexual relationships; therefore, on youth who identified themselves as "straight" or as "heterosexuals".

Through my social connections, I was put in contact with diverse youth. When I initiated contact with my participants over the phone, I was very careful in my approach, especially with potential female participants and participants aged 15-17. First, I explained the purpose of my research study. Second, I ensured that I informed them that I was interested in their perceptions about various sexual behaviours in the group discussions, regardless of their sexual activity, and without necessarily addressing and discussing their personal sexual experiences. However, I informed the participants for the in-depth interviews that I would be interested in their personal experiences. Indeed, the response rate was higher than I expected. A number of youth deliberately expressed their willingness to take part in my research study and I found out that youth in Nigeria are willing to talk about their sexual behaviours.

After youth and parents allowed for their youth to take part in the research, I arranged interview times with them, and asked them whether they had a specific place or preferred venue, which they considered as 'safe' and 'private' in order to carry out the interview. Some of the participants chose to be interviewed in their own houses. Others did not mind being interviewed at some available public spaces, which I arranged. These spaces were either located at the city centre or sometimes, a lesson centre. Sometimes, I also conducted interviews at female hostels in a particular university in Enugu city. I took all these measurements to ensure privacy, confidentiality and as comfortable a setting as possible. However, about 8 of my participants chose to be interviewed in a public shop, which had its own disadvantages, in terms of privacy and comfort, as I explain below.

Overall, I found that the general setting (public versus private spaces), as well as the different personalities of the students, influenced the dynamic and flow of the conversation. For instance, students whom I interviewed in their homes,

or in private spaces, demonstrated more relaxed body language, and a willingness to open up, compared to those I interviewed in public spaces, such as shops in the city centre. Even youth who were shy and, somehow, quiet or reticent, had longer interviewing times in closed private spaces. Public spaces, in general, inhibited interviewees from expressing themselves, to a certain extent.

This was evident when few participants were being concise, despite me asking my questions in different ways and using lots of probing questions. Scholars who have conducted sensitive research had similar issues in relation to what was spoken out by the participants: where (in which setting), how (much they reveal) and to whom (researcher). All of these factors depended on the level of trust, and the extent to which participants felt safe (Dickson-Swift et al, 2007). Many of these accounts had already been highlighted in feminist research, which is known for breaking silences and trying to make women's voices heard (Ryan-Flood and Gill, 2010).

Gender and geographical location also played a role in determining the flow of the conversation. In general, young women especially in Kano State were very cautious and reluctant about what they were saying at the beginning of the interviews on sexual behaviours. However, as the conversation progressed, a lot of interesting perspectives and stories emerged from them. Young men, on the other hand, seemed concerned to use polite language because I was a 'woman'. They avoided mentioning vulgar terms and sexualised language, which carried sexual connotations in their colloquial language at the beginning of the interview. Some male interviewees also conveyed mixed messages about their views and attitudes towards different sexual behaviours because, as we talked, I tried my best to present an open-minded, non-judgemental and understanding approach, to make them feel comfortable in opening up and being more transparent about their true feelings, attitudes and perceptions, instead of hiding them in front of a female researcher. Berger (2015) argues that a researcher's personal characteristics, such as gender, age, race, language, origin, beliefs, biases, and preferences influence participants'

responses. This was evident when female participants were comfortable sharing and discussing their views and even their intimate sexual experiences with me, being a female researcher, during and after the interview, as I explain below.

All interviews were carried out individually and notes were concurrently taken. All interviewees approved of having their interviews digitally recorded and most of the youth allowed for pictures of the setting to be taken. I found the youth in Enugu state most liberal while the youth in Kano were more reticent. Taking notes during an interview instead of recording has its own disadvantages, such as carrying the potential of losing some of the data and being unable to maintain a high level of accuracy. In total, I had 30 recorded and 4 unrecorded interviews. The average timing of each interview was around one hour. Some interviews lasted between 90 to 120 minutes, while others were shorter, around 30 to 45 minutes. The digital recording of each interview was transferred to my laptop, and was labelled with the real name of the participant I interviewed. I deemed this to be acceptable, as my personal laptop is only accessed by myself, and it has a very secure password. Besides, the location of the stored data on the laptop is difficult to find.

3.2.2.3 Pilot testing

Before I started the actual data collection, I carried out four pilot interviews. The interviews went really well. I did not have to make any major amendments. The first few interviews helped me to better phrase my questions, and focus more on the risk component during the interview. Only minor amendments were made to the interview questions and questionnaire, such as changing some of the wording of the questions. This had not really affected the quality of the interviews, so I included these interviews in my overall sample, as there was not any significant difference in the approach or the amendments made.

3.2.2.4 On the day of the interview

Before starting each of the interviews, I introduced myself and thanked youth for their participation and for finding the time to meet. I always tried to break the ice with the participants by opening a short side conversation about simple things like the weather or the traffic, for example. This approach helped to start off the conversation and helped to prepare a comfortable setting, and establish some sort of trust.

3.2.2.5 Obtaining consent

When introducing myself, I usually explained that I'm a youth like most of them in addition to being a doctoral candidate. I would then briefly explain to my participants the research objective, and about all the ethical issues in relation to my research study. That is, assuring them of confidentiality, anonymity, privacy and data protection, as well as obtaining their consent to voluntary participation in their interview. I also answered any questions or concerns they raised. This was especially important in this research study, as the data was especially sensitive, and might have carried undesirable consequences if released, disclosed or lost. All my participants received two documents, one page each. The first document was introductory or informative. It included information about the research study and its objectives, as well as my contact information for the participants to retain for their future reference. The second document aimed at obtaining students' informed consent to voluntarily participate in the research study. The consent form was signed and kept with me [A copy of the information and consent forms are attached in the appendix].

3.2.2.5 Building rapport and trust

During the interview, I tried my best to establish trust and rapport with my interviewees to help them feel comfortable and able to disclose their thoughts and experiences. After the interview, I thanked them for their time and

valuable participation. Sometimes, participants (males and females) would stay longer to talk or ask more questions. Interestingly, almost half of the youth I interviewed stayed after the interview. Some told me more about their personal stories and experiences, and even asked for my advice and personal contact details. A number of the participants (males and females) stayed in touch with me, as friends, through social media, such as Facebook or twitter. Consequently, I continued to hear from some about their love stories and the dilemmas they were facing. For instance, one of the participants contacted me few months after interviewing her, telling me that she changed her mind about "condom non-use", since the interview. This confirms that research can be an ongoing relationship that becomes social.

Besides, majority of the youth expressed their delight that they had found someone to speak to about sex-related issues. They expressed their cautiousness and reluctance to talk about sex openly with anyone, including their close friends. They expressed their anger towards the judgemental aspect of their various communities, and were keen to know more about sex-related issues. This reflects the importance of listening to youth with no prejudice or judgement whatsoever. It reflects how much sex education is needed, and how important trust is.

3.2.2.6 Observations

Right after the interview, I would write down some notes and observations about some of my impressions or reflections or about the participant's non-verbal expressions or body language. These notes helped me later in the analysis stage to better reflect on each of the interviews. For example, in one of my interviews with a young man in a mall (public space), I noted that the participant was frequently avoiding eye contact, and looking at people around him instead, as if he was watching out for someone who might be listening to our conversation. Although he expressed very liberal views towards premarital sex, his body language demonstrated some level of anxiety. His answers were short and concise, despite encouraging him to elaborate. I

sensed the discomfort in his body language. This made me avoid interviewing people in public places, unless they specifically requested it. On the whole, at least 3 out of the 4 students, who were interviewed in public spaces, demonstrated lower levels of comfort in their body language compared to those interviewed in private venues.

3.2.2.7 Data Collection Instrument

Based on the sensitivity of my study objectives, when I was developing my interview questions, I did not aim to ask my participants in the FGD's directly about their personal sexual experiences. Instead, I aimed to ask them about their views and perceptions of various sexual behaviours, their perceived benefits and reasons as to why young adults engage in these behaviours even in the face of adversity. This was done in order to avoid any embarrassment or discomfort for them. Consequently, I shared a story about two fictional adolescents so as to get their perspectives on the characters. I developed six main open-ended questions for the semi-structured interview in English, and translated them into native language of the study site. The first question was a general, icebreaking question, where I asked participants to describe the way they perceived young people in their environment, in general, in terms of their life styles, interests, mentality (conservativeness vs. openness).

The purpose of this introductory question was mainly to warm up and talk about general youth related issues from a young person's perspective, instead of directly asking sensitive questions about their views and attitudes towards sexual behaviours, a topic which informed my second question and the other questions. The second question was on sexual behaviours of young people in their environment and their perceptions regarding these behaviours, which was then followed by the third question on why youth choose to engage in protective sexual behaviours even in the face of challenges. I finished my interviews by asking participants whether they would like to add anything or talk about issues, which had not been addressed during our interview, but which they felt were important. All the main questions were followed by

probing questions, depending on the dynamic and flow of each interview. [A copy of the semi-structured interview questions is attached in appendix A].

3.2.2.8 Data Analysis

The following section outlines briefly how the last two objectives were addressed with the qualitative data:

- explore why youth choose to engage in protective sexual behaviours in Nigeria. This was achieved by focus group discussions and in-depth interviews
- understand how youth manoeuvre the challenges of everyday life in the face of extreme sexual vulnerability and this was answered by in-depth interviews with the youth.

I finished a precise transcript for all the 104 recorded interviews. While I was transcribing, I was creating summaries, jotting down notes and assigning codes to my data with the use of NVIVO. Afterwards, I categorized the codes and sort the main themes which were guided by my research question and interview guide.

Some of the themes which will be discussed in detail include; "perceptions about abstinence", "reasons why youth abstain", "gender norms", "morality: reputation in the environment, "social risk: importance of the family and environment", "future risk: marriageability", "strategies and negotiations" and "resilience".

Study population justification

Before stating the reasons for selecting my study population, I would like to describe what "youth" means in this research study. The term "youth" and "young people" would be used interchangeably in this study. The definition of "young people" or "youth" varies between different international agencies, and entities, which concern themselves with this population. The specific age-

group which defines youth also varies across the African continent. Most of these definitions depend on cultural, institutional and socio-political issues (Gyimah-Brempong & Kimenyi, 2013). For example, in many African settings, laws define adulthood as commencing from the age of 21 although there has been an attempt to lower to age 18 years in the recent years (Curtain, 2000). However, some parts of rural Africa define adulthood as the capacity to sustain a legal marriage and those who are not married till be regarded as children (Abdullah, 1999). For standardization purposes, the United Nations came up with specific age categories to define youth. The standard United Nations definition states that youth include people between 15 and 24 years of age (Khan & Mishra, 2008). This has been noted to be for the purposes of statistical consistency (Secretary-General's Report to the General Assembly, A/40/256, 1985).

This definition is inconsistent with the definition of youth as contained in the Nigerian National Youth policy which defines youth as comprising all young persons between the ages 18 and 35. This is because the youth category has been extended to 30 years and beyond in many African settings which is a reflection of prolonged youth dependence. It also reveals the inability of many young people to pursue sustainable livelihoods as a result of the stagnant economic situation in SSA (Chigunta, 2002). For the purpose of this study, youth would be defined as males and females aged 15-24 based on the United Nations definition. One of the main reasons for concentrating on this age group is because a recent report by Lancet 2016 has described them as the most pervasively neglected group in global health (Patton et al., 2016).

In this study, youth would be stratified into young adults aged 15-17 and 18-24. This is because qualitative literature on the sexual behaviour of young people has been limited to samples from very specific socio-economic backgrounds or samples that include minors as well as adults. The context in which sexual activities occurs and the consequences associated with the behaviour might, however, be very different for young adults aged 15-17 as opposed to young adults who are between the ages 18-24. Also, a number of

youth aged 15-17 have already been exposed to sexual education either in their schools or social networks so it would be important to document their perceptions of sexual behaviours. Studies with focus on the perceptions of young adults aged 15-17 on sexual behaviours have been well documented in other studies (Smith et al., 2003; Van der Geugten, Van Meijel, Den Uyl, & De Vries, 2016; Van Ouytsel, Van Gool, Walrave, Ponnet, & Peeters, 2017).

Having illuminated the definition of "youth", I move on to highlight the rationale behind choosing young adults aged 15-24 in Nigeria despite some challenges with accessing them and getting ethical approvals which I would outline below:

3.2.2.9 Challenges:

Obtaining consent: Based on the sensitivity of my research area and the Nigerian context, there were huge ethical concerns regarding access to youth below the age of 18. For instance, it was required I obtained parental approval for these youth. This was partly because sex related issues are believed to be "taboo" topics in a number of households in Nigeria. This made approaching youth through their parents and schools quite challenging at first.

Institutional ethical approval: apart from obtaining parental consent, getting ethical approval from my primary institution was quite difficult. The committee felt that talking to youth below the age of 18 was exposing them to some questions regarding sexual issues they would otherwise not be exposed to. This resulted in a delay in getting the ethical approval. The first ethical approval for this study was obtained from University of Witwatersrand and it only covered youth aged 18-24. However, I wanted to get the perceptions of young people aged 15-17 as they have been previously neglected in sexuality studies. I applied for ethical approval from the Ministry of Health, Nigeria and was able to get positive feedback which enabled me embark on the research.

Accessibility and language barrier: The aim of the research was to get a representative sample of young people in each of the selected states. However,

I did not have existing social connections in any of the states. This made it a bit difficult to access field workers who were conversant with the language in each state.

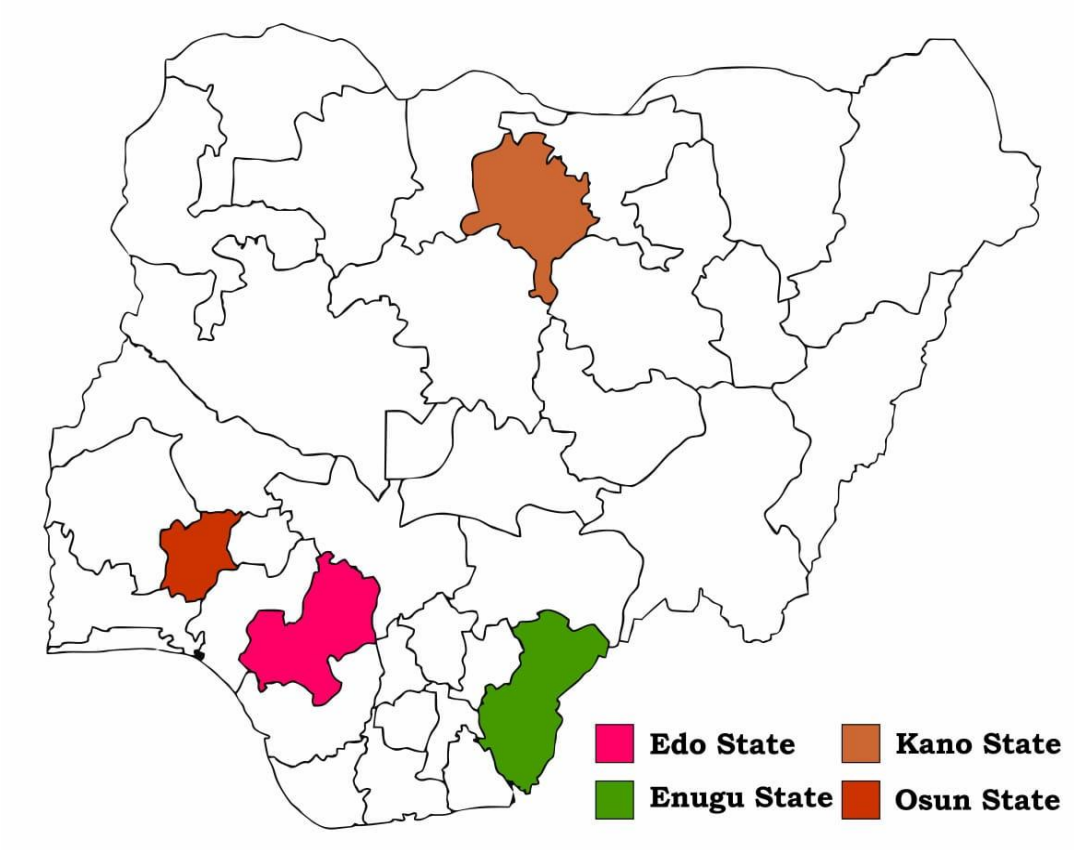

Figure 3.2: Map of Nigeria showing study sites

3.2.3 Phase Three

The final phase of this study was a cross-sectional data collection which took place from February 2018 through May 2018.

Questions were focussed on socio-demographic characteristics; attitudes and behaviours towards sexual behaviours; family environment and community structure. The demographic characteristics included questions on age, sex,

number of sexual partners, religion, religiosity, educational attainment and employment [A copy of the questionnaire is attached in the appendix].

The data from this questionnaire was useful in a number of ways. This third phase of data collection was useful in several ways. First, it gave me a better understanding of the target population and enable me include other youth that I could not interview. These youths were diverse in their demographic characteristics. Examining the filled questionnaires allowed me identify gaps in youth backgrounds which made me correct my recruitment strategy where necessary. For example, checking whether there were more females in comparison to males or whether I had enough information on youth engaging in protective sexual behaviours. I did try to address significant outliers when I found any but it was rare.

3.2.3.1 Study Population and Sample

This study sampled unmarried male and female youth aged 15-24.

Using the sample size for single proportions,

$$n = \frac{(Z_\alpha)^2 [p\,(1-p)]}{(d)^2}$$

Where n is the minimum sample size

- Zα = Standard normal deviate corresponding to a 2-sided level of significance of 5%=1.96
- p1 = prevalence of positive sexual behaviour =45.7% (NDHS, 2013)
- q= 1-p = 1-0.457 = 0.543
- d = desired precision = 5% = 0.05

Adding a Design Effect of 1. 2 based on cluster sampling technique = 476 x 1.2 = 571.2. Therefore, a minimum sample size of 571 youths was calculated. However, due to the population of Nigeria and the percentage of youth aged 15-24 in the country, this study decided to calculate the sample size for each

of the purposefully selected states using their various prevalence of protective sexual behaviours. This approach has also been used by ICF international for the Nigerian Demographic and Health Surveys. The sample size (2,339 participants) for each state has been presented in Appendix 2.

3.2.3.2 Sampling Design

The study adopted a 3-stage cluster random sampling technique. 2,339 young people took part in the study. Participants were drawn from four states (Edo, Enugu, Osun and Kano) in Nigeria. These states were selected based on their regional variability and prevalence of positive sexual behaviours in the Nigerian Demographic and Health Surveys (NDHS). Based on the 3 stage cluster sampling technique, youth were recruited thus:

Stage 1:

Each state has three senatorial districts with an average of 11 local government areas per district. The list of LGA's was obtained from the Nigeria Bureau of Statistics (NBS) and was stratified into urban, sub-urban and rural. Using a simple random sampling technique, two LGAs were selected by balloting from each urban, sub-urban and rural LGAs making a total of 6 districts per district.

Stage 2:

In each LGA (rural or urban), two wards were selected by balloting from the list of wards obtained from the LGA commission.

Stage 3:

Wards were regarded as clusters. In each ward, youth locations where many congregate (markets, lesson centres, garages and schools) were identified and young people (male or female) who were within the age group 15-24 were invited to participate in the study.

3.2.3.3 Data Collection Procedure

The quantitative data were collected electronically through Open Data Kit (ODK collect). The ODK collect application was installed on set of android phones. The structured questionnaire was scripted and uploaded on the ODK sever. A pre-test of the study instrument was conducted with 60 youth recruited from in Lagos state, Nigeria to correct items that were found to be confusing. Field workers were trained on how to use the devices to collect data, while a data auditor was employed to monitor routine data upload. The interviewers read the instructions to the participants and the participants were given the android phones to answer questionnaires themselves. English was used to interact with the respondents as most of them had basic understanding of English. The research assistants were proficient in English and the local languages in each of the states. They were trained to help clarify issues to respondents who presented in any difficulties. Participants were allowed to complete the questionnaires at their own pace. Participants were encouraged to respond to all items, and interviewers provided individual assistance to participants who required additional help. There was no monetary compensation given to the participants for participating. The survey questionnaire included modules on education, employment, socio-demographic background, religious affiliation and practices, sexual history and behaviour, HIV/AIDS awareness, parent-child relationship, social capital and neighbourhood measures. The choice of ODK instead paper questionnaires is to reduce errors that are associated with paper questionnaires and minimise under-reporting or over-reporting of various sexual behaviours by respondents.

3.3 Ethical considerations

Ethical approval was only obtained for phases two and three of this study since phase one was primarily focused on study youth sexual behaviours using secondary data. There was no identifying information in the dataset. This

implies that anonymity and confidentiality of the study respondents were guaranteed. In addition, ethical permission for the use of the Nigeria Demographic and Health Survey had already been obtained from ICF Macro Inc., USA

Study procedures were approved by the Human Research Ethics Committee (Medical) of University of the Witwatersrand (H17/11/54) and the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-16/10/2018). Each participant signed an informed consent form. Respondents were guaranteed utmost confidentiality, privacy and anonymity. Based on the age of some of the participants, permission from parents and guardians was sought and obtained to interview the participants less than 18 years. The voluntary nature of participation was stressed to both participants and parents.

In this chapter, I have shown that my research study was rigorous, because I used the appropriate methodology for my research question. I used national representative data, in-depth, semi-structured interviews and triangulated my data against data from my questionnaire. I ensured I did my best to eliminate bias throughout the research process. This was specifically done through a continuously reflexive process. I stopped collecting qualitative data when I reached data saturation point, and the majority of my data was accurate, as it was recorded and transcribed. In brief, the methodology used was successful in answering my research questions in the findings and analysis, as I show in the next three chapters.

3.4 Strategies for disseminating findings

Some preliminary findings from this study have already been presented in several local and international conferences. A number of papers have also been drafted from this study; some have been published and others are currently undergoing peer review process in accredited peer-reviewed journals in the global health and social science fields. Also, to ensure the findings of this study

reaches the appropriate audience to influence policy, a policy brief (presented in Appendix A of this thesis) has been sent to the Population Reference Bureau and would be sent to the Nigerian government through the Macro International. Besides, more findings from this study will be widely disseminated at other local and international conferences and workshops. Besides, more findings from this study will be widely disseminated at other local and international conferences and workshops. Table 3.3 below presents the names of conferences where findings of this study have been presented. The table also presents other proposed conferences and titles of papers to be presented.

Table 3.3 Conferences for the disseminations of research findings

S/N	Proposed Conferences	Conference Dates	Title of paper	Action
1	International Association for Adolescent Health 11th World Congress on Adolescent Health 2017	27-29 October 2017, New Delhi, India	Trends and Patterns of Positive Sexual Behaviours among Youth in Nigeria	Abstract accepted but conference not attended
2	XXVIII IUSSP International Population Conference	29th October – 4th November 2017, Cape Town, South Africa	Familial Characteristics and Abstinence among Young Adults in sub-Saharan Africa	Abstract accepted and paper presented
3	XXVIII IUSSP International	29th October – 4th November	"Trends and patterns in timing	Abstract accepted

	Population Conference	2017, Cape Town, South Africa	of age at first sex among youth in Nigeria: The role of modern norms and ideas	and paper presented
4	HEAIDS conference	9-10 June 2017, Durban, South Africa	Trends and Patterns of HIV Testing among Youth in sub-Saharan Africa: The Role of Mass Media	Abstract accepted but conference not attended
5	Population Association of America 2018	April 26-28 , Denver, USA	Religiosity and Youth Sexual Behaviour in South West Nigeria: Does Parent Religion Matter?	Abstract accepted but conference not attended
6	The 4th Asian Population Association (APA) Conference	11-14 July 2018, Shanghai, China	Religiosity and Youth Sexual Behaviour in South West Nigeria: Does Parent Religion Matter?	Abstract accepted but conference not attended
7	21st European Regional IAAH Conference	3-5 October, 2018,	Religiosity and Youth Sexual Behaviour in	Abstract accepted but

	2018 and III National Conference in Adolescent Health	Chisinau Moldova	South West Nigeria: Does Parent Religion Matter?	conference not attended
8	International Conference on Family Planning	11-15 November 2018, Kigali, Rwanda	Religion and youth sexual behaviour in South West Nigeria: Does parent religiosity matter?	Abstract accepted and paper presented
9	International Conference on Urban Health 2018	26-30 November 2018, Kampala, Uganda	The impact of culture on positive sexual behaviour among adolescents in Nigeria	Abstract accepted by conference not attended

Table 3.4 Articles published and to be published for the dissemination of research findings

S/N	Title	Thesis Chapter (s)	Submission Date	Journal	Status
1	Regional Differences in Protective Sexual Behaviour among Youth in Sub-Saharan Africa	Chapters 2, 6	October 2017	Journal of Biosocial	Published
2	Protective Factors for Adolescent Development in sub-Saharan Africa: Does Context Matter?"	Chapters 2, 6	December 2017	PLOS ONE	Published
3	Union Formation among Youth in sub-Saharan Africa: Does Early Sexual Debut Matter?	Chapters 2, 6	January 2019	Emerging Adulthood	Published

4	Religiosity and sexual abstinence among Nigerian youths: Does parent religion matter?	Chapters 4, 6	April 2019	BMC Public Health	Accepted
5	A Decade Later: Media Exposure and HIV Testing among Youth in Sub-Saharan Africa".	Chapters 2, 6	April 2019	Sage Open	Accepted
6	Community structure and timing of first sex among youth in Nigeria	Chapters 4, 6	August 2018	Journal of Sex Research	Peer-reviewed
7	Exploring variations in positive sexual behaviour among youth in Nigeria using league table, control chart	Chapters 4, 6	December 2018	Health policy and planning	Draft

	and spatial analysis				
8	A latent class approach to understanding patterns of positive sexual behaviour in four states in Nigeria	Chapters 4, 6	December 2018	Culture, health & sexuality	Draft
9	Have sense or face the consequences! Youth perceptions on condom use in Nigeria	Chapters 4, 6	January 2019	African journal of reproductive health	Draft
10	Socio-cultural factors and positive sexual behaviour among youth in Nigeria	Chapters 4, 6	December 2018	Perspectives on sexual and reproductive health	Draft
11	Youth sexual resilience in a disorganized neighbourhood in Nigeria	Chapters 4, 6	February 2019	Journal of adolescence	Draft

12	Religion and youth sexual behaviour in Nigeria: examining regional variations	Chapters 4, 6	January 2019	Journal of religion and health	Draft
13	Beyond Risk: Understanding a Framework for Improving Adolescents' Sexual Health in Nigeria	Chapters 4, 6	May 2019	International Journal of Public Health	Draft

Chapter 4

Patterns, Socio-economic and Neighbourhood Characteristics of Study Population

The demographic, socio-economic and neighbourhood attributes of the environment where youth reside are important and necessary to be addressed first before examining their sexual behaviours. Hence this chapter presents the distributions of the study sample by selected demographic, socio-economic and community characteristics which could either directly and/or indirectly influence protective sexual behaviours as established in the literature.

Background characteristics are presented using descriptive statistics. The characteristics are divided into three sub-sections: individual-level characteristics, household-level characteristics and community-level characteristics. Individual-level characteristics are the characteristics of the youth. Household-level characteristics are the family characteristics. Community-level characteristics are the attributes of the community or cluster where the youth reside. Descriptions of the percentage distributions of the study sample by selected characteristics are also provided by Figures 4.1 to 4.11. These figures show the distribution of youth according to selected individual, household and community levels characteristics.

4.1 Profile of study population

Using the DHS, results showed that the percentage of young people engaging in different forms of sexual behaviours varied in the three survey years. The results in Table 4.1a shows the trends on protective sexual behaviours among females. More than half of the females were primary abstainers in all of the three survey years (68%, 63% and 62% respectively). The percentage of recent abstainers was also similar for the three survey years (21%, 23% and 25% respectively). By single sexual partnership, percentage of youth engaging

in single sexual partnerships[2] increased from 68% in 2003 to 75% in 2013. This increase was evident among youth testing for HIV. HIV testing among female youth increased from 7% in 2003 to 16% in 2013. In addition, condom use among sexually active youth increased from about 25% in 2003 to 36% in 2008 and 47% in 2013. Among males, results in table 1b more than half of the respondents were also primary abstainers (62%, 64% and 72% respectively). Recent abstainers ranged from 22% in 2003, 25% in 2008 and 20% in 2013. A large number of the male youth were engaging in single sexual partnerships (74%, 72% and 79% respectively). There was a slight increase in male youth testing for HIV. HIV testing among male youth ranged from 9% in 2003 and 2008 to 10% in 2013. Condom use among male youth who were sexually active increased from 47% among males in 2003 to 50% in 2008 and 58% in 2013.

The results in Table 4.2 show the percentage distribution of individual and household characteristics of youth sampled in four different states. The total sample size of youth surveyed was 2,339 which included males and females. About 56% of the sample were females and about 32% of the youth were sampled in rural areas. Two thirds of the sample were Christians and three out of 10 of the youth were Muslims. About 60% of the respondents reported that religion was very important to them. Majority of the sample had attained secondary education and 21% of them had attained higher education. About two thirds of the youth had never worked for pay.

[2] These percentages are among youth who were sexually active

Table 4.1: Trends in Protective Sexual Behaviour among youth in Nigeria

	Females			Males		
Characteristics	**2013 (7,743)**	**2008 (6,939)**	**2003 (1,684)**	**2013 (6,123)**	**2008 (4,537)**	**2003 (827)**
Abstinence						
Primary abstinence	68.14 (5,268)	63.25 (4,361)	61.73 (1,038)	71.50 (4,307)	63.85 (2,877)	62.04 (502)
Recent abstainers	20.75 (1,604)	(22.54) 1,554	25.25 (424)	19.63 (1,182)	24.93 (1,123)	22.43 (181)
Active in last 4 weeks	11.12 (859)	14.21 (979)	13.02 (219)	8.88 (534)	11.22 (505)	15.53 (125)
Single Sexual Partners						
Yes	74.50 (1,971)	70.08 (4,845)	31.57 (531)	78.07 (4,697)	72.30 (3,252)	73.08 (578)
No	25.50 (5,761)	29.92 (2,069)	68.43 (1,151)	21.93 (1,319)	27.70 (1,246)	26.92 (213)
HIV Testing						
Yes	15.52 (6,533)	9.72 (671)	6.91 (101)	9.76 (587)	9.05 (374)	8.08 (62)
No	84.48 (6,533)	90.28 (6,243)	93.09 (1,364)	90.24 (5,436)	90.95 (3,765)	91.92 (707)
Condom Use (Last Sex)						
Yes	1,110 (56.31)	35.57 (763)	25.11 (133)	57.86 (774)	49.95 (644)	46.65 (108)
No	43.69 (861)	64.43 (1,382)	74.89 (397)	42.14 (564)	50.05 (645)	53.35 (123)

By family characteristics, more than three quarters of the youth reported that their father and mother were alive. More than half of the respondents lived with both parents while about 21% of the youth lived with nether parent. About 44% of the youth had discussed sex related matters with mother compared to 18% of the youth who reported discussing sex related matters with their father.

By some other personal characteristics, about 23% of the youth had gotten drunk in the past month and more than half of the youth had high self-efficacy.

Table 4.2: Individual and household characteristics of sample population

Characteristics	Edo	Enugu	Kano	Osun	Total (2,339)
Sex					
Female	70.11 (387)	55.64 (355)	50.08 (312)	48.86 (257)	56.05 (1,311)
Male	29.89 (165)	44.36 (283)	49.92 (311)	51.14 (269)	43.95 (1,028)
Age					
15	8.51 (47)	1.57 (10)	2.09 (13)	1.52 (8)	3.33 (78)
16	16.49 (440	3.76 (24)	5.14 (32)	11.98 (63)	6.97 (163)
17	11.96 (66)	7.52 (48)	5.78 (36)	5.51 (29)	7.65 (179)
18	3.80 (21)	10.19 (65)	13.32 (83)	10.46 (55)	9.58 (224)
19	3.44 (19)	12.70 (81)	9.63 (60)	11.22 (59)	9.36 (219)
20	4.17 (23)	13.64 (87)	10.43 (65)	9.51 (50)	9.62 (225)
21	12.86 (71)	15.36 (98)	12.36 (77)	6.08 (32)	11.89 (278)
22	7.43 (41)	12.54 (80)	14.13 (88)	12.74 (67)	11.80 (276)
23	16.12 (89)	9.72 (62)	14.13 (88)	11.22 (59)	12.74 (298)
24	23.73 (131)	13.01 (83)	13.00 (81)	19.77 (104)	17.06 (399)
Place of Residence					
Urban	14.67 (81)	25.08 (160)	38.4 (202)	53.29 (332)	33.13 (775)
Sub-urban	55.43 (306)	31.66 (202)	27.00 (142)	28.41 (177)	35.36 (827)
Rural	29.89 (165)	43.26 (276)	34.60 (183)	18.30 (114)	31.51 (737)
Religion					
Catholic	34.78 (192)	61.76 (394)	6.58 (41)	8.37 (44)	28.69 (671)
Other Christian	55.80 (308)	36.05 (230)	9.31 (58)	64.45 (339)	39.97 (935)
Muslim	5.80 (32)	0.63 (4)	83.79 (522)	25.29 (133)	29.54 (691)
Traditional	3.62 (20)	1.57 (10)	0.32 (2)	1.90 (10)	1.80 (42)
Other					
Importance of religion					
Important	50.00 (276)	35.74 (228)	18.14 (113)	34.79 (183)	34.20 (800)
Not important	14.13 (78)	1.88 (12)	0.96 (6)	2.28 (12)	4.62 (108)
Very important	35.87 (198)	62.38 (398)	80.90 (504)	62.93 (331)	61.18 (1,431)
Religion_Head household					
Catholic	34.06 (188)	61.91 (395)	11.88 (74)	9.89 (52)	30.31 (709)
Other Christian	55.62 (307)	36.21 (231)	8.83 (55)	63.50 (334)	39.63 (927)
Muslim	7.07 (39)	0.78 (5)	78.81 (491)	25.48 (134)	28.60 (669)
Traditional	3.26 (18)	1.10 (7)	0.48 (3)	1.14 (6)	1.45 (34)
Other					
Educational Attainment					
No education	9.24 (51)	1.57 (10)	1.61 (10)	0.19 (1)	3.08 (72)
Primary	24.09 (133)	5.49 (35)	15.89 (99)	10.46 (55)	13.77 (322)
Secondary	45.29 (250)	73.04 (466)	63.72 (397)	66.16 (348)	62.46 (1,461)
Higher	21.38 (118)	19.91 (127)	18.78 (117)	23.19 (122)	20.69 (484)
Ever work for pay					
No	70.83 (391)	66.30 (423)	69.82 (435)	56.08 (295)	66.01 (1,544)
Yes	29.17 (161)	33.70 (215)	30.18 (188)	43.92 (231)	33.99 (795)
Father alive					
No	31.88 (176)	18.81 (120)	25.52 (159)	10.46 (55)	21.80 (510)

Yes	68.12 (376)	81.19 (518)	74.48 (464)	89.54 (471)	78.20 (1,829)
Mother alive					
No	22.62 (114)	12.26 (78)	12.30 (76)	7.41 (39)	13.44 (307)
Yes	77.38 (390)	87.74 (558)	87.70 (542)	92.59 (487)	86.56 (1,977)
Family structure					
Living with both parents	46.74 (258)	58.15 (371)	46.23 (288)	71.29 (375)	55.24 (1,292)
Mother alone	13.77 (76)	16.30 (104)	16.69 (104)	14.26 (75)	15.35 (359)
Father alone	11.78 (65)	7.84 (50)	8.51 (53)	6.65 (35)	8.68 (203)
Neither parent	27.72 (153)	17.71 (113)	28.57 (178)	7.79 (41)	20.74 (485)
Parental monitoring					
Low	55.80 (308)	27.12 (173)	34.03 (212)	39.75 (207)	34.48 (900)
medium	39.13 (216)	49.37 (315)	41.09 (226)	37.26 (196)	42.02 (983)
High	5.07 (28)	23.51 (150)	24.88 (155)	23.38 (123)	19.50 (456)
Discuss sex related matters with mother					
No	60.51 (334)	42.63 (272)	54.57 (340)	69.01 (363)	55.96 (1,309)
Yes	39.49 (218)	57.37 (366)	45.43 (283)	30.99 (163)	44.04 (1,030)
Discuss sex related matters with father					
No	75.54 (417)	77.59 (495)	82.18 (512)	91.06 (479)	81.36 (1,903)
Yes	24.46 (135)	22.41 (143)	17.82 (111)	8.94 (47)	18.64 (436)
Gotten drunk in last 30 days					
No	80.98 (447)	68.34 (436)	86.04 (536)	73.76 (388)	77.26 (1,807)
Yes	19.02 (105)	31.66 (202)	13.96 (87)	26.24 (138)	22.74 (532)
Self-efficacy					
Low	40.40 (223)	45.45 (290)	56.82 (354)	45.44 (217)	47.29 (1,106)
High	59.60 (329)	54.55 (348)	43.18 (269)	54.56 (287)	52.71 (1,233)

4.2 Percentage Distribution of Community Characteristics

At the community level, the contextual characteristics of interest are: community socio-economic status measured as community education and proportion of poor women in the community, ethnic diversity, proportion of women engaging in SSP, community HIV testing and community media exposure. The percentage distribution of these characteristics have been presented in the figures below.

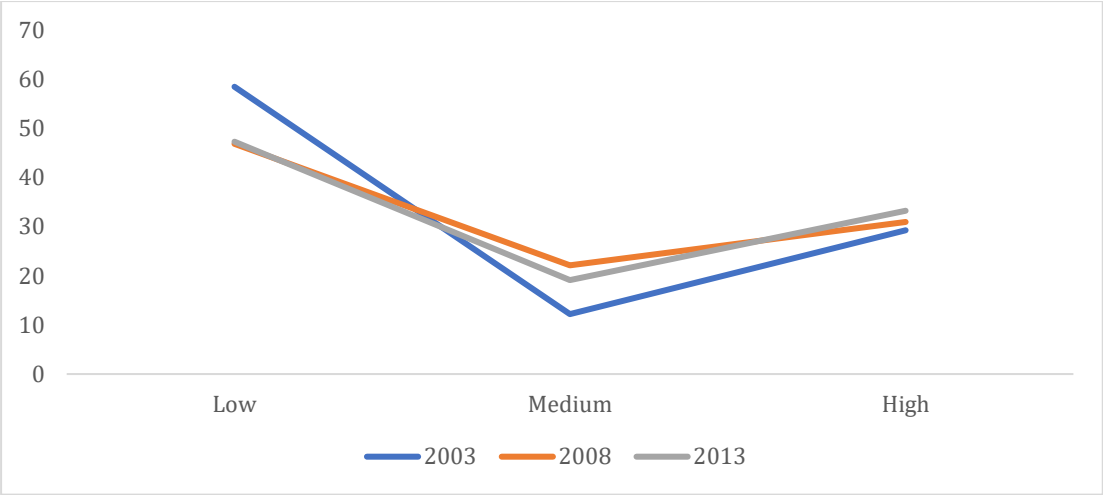

Figure 4.1: Percentage distribution of male youth by community poverty

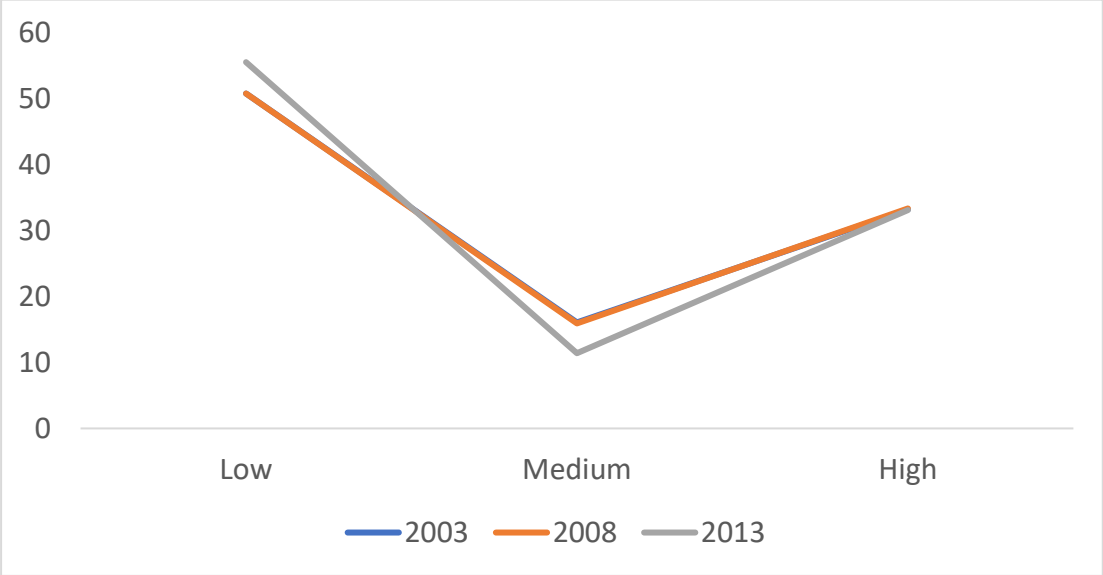

Figure 4.2: Percentage distribution of female youth by community poverty

4.3 Community characteristics in selected states

The distribution of community characteristics in the selected states showed that at the school level, about two thirds of the youth had never attended a single sex school and most of them attended schools that were run by the government. Youth who attended schools run by religious groups ranged from 8% in Edo state to 29% in Kano state. About half of the youth in all the study

states reported that they had role models except in Edo state where 40% of the youth reported having role models. Social capital in the communities ranged from 47% in Enugu state to 59% in Osun state. Less than half of the youth had recreational resources in their environment.

Table 4.3: Community characteristics of population

Characteristics	Edo	Enugu	Kano	Osun	Total
Ever attend single sex school					
No	79.71 (440)	61.29 (391)	61.80 (385)	83.65 (440)	70.80 (1,656)
Yes	20.29 (112)	38.71 (247)	38.20 (238)	16.35 (86)	29.20 (683)
School management type					
Government	67.39 (372)	69.91 (446)	66.13 (412)	63.88 (336)	66.95 (1,566)
Private	32.61 (180)	30.09 (192)	33.87 (211)	36.12 (190)	33.05 (773)
School managed by religious group					
No	92.08 (442)	76.20 (397)	70.75 (254)	88.27 (301)	81.95 (1,394)
Yes	7.92 (38)	23.80 (124)	29.25 (105)	11.73 (40)	18.05 (307)
Have role models					
No	59.96 (331)	38.71 (247)	49.92 (311)	49.62 (261)	49.17 (1,150)
Yes	40.04 (221)	61.29 (391)	50.08 (312)	50.38 (265)	50.83 (1,189)
Social capital					
Low	51.09 (282)	52.66 (336)	45.91 (286)	41.25 (217)	47.93 (1,121)
High	48.91 (270)	47.34 (302)	54.09 (337)	58.75 (309)	52.07 (1,218)
Availability of recreational resources					
No	66.85 (369)	51.88 (331)	70.14 (437)	49.62 (261)	59.77 (1,398)
Yes	33.15 (183)	48.12 (307)	29.86 (186)	50.38 (265)	40.23 (941)

4.4 Patterns of protective sexual behaviour among female youth in Nigeria

4.4.1 Abstinence

Demographic characteristics

By age, more than three quarters of female youth aged 15-17 were primary abstainers in 2013, 2008 and 2003 compared to less than half of the youth aged 18-24 in 2013 and 2008. About 52% of female youth aged 18-24 were primary abstainers in 2003. Recent abstinence was more among youth aged 18-24 and was about 32% for female youth in the three survey years. By place of residence, primary abstinence increased slightly among female youth from 64% in 2003, 65% in 2008 and 67% in 2013 in urban areas. However, about 67% of female youth in rural areas were primary abstainers in 2003 compared to 63% in 2008 and 66% in 2013. In urban areas, the percentage of female youth who were recent abstainers decreased from 25% in 2003 to 21% in 2008 and 2013. By religion, primary abstinence among youth who were Catholics ranged from 64% in 2003 to 61% in 2008 and 2013. Among other Christians, primary abstinence ranged from 62% in 2003 to 57% in 2013. However, among female youth who were Muslims, primary abstinence increased from 57% in 2003 to 82% in 2008 and 86% in 2013. However, recent abstinence among Muslim female youth reduced from 29% in 2003 to 9% in 2013. The association between ethnicity and abstinence showed that percentage of primary abstainers decreased among female Yoruba youth from 66% in 2003 to 64% in 2003. This decline was similar among female Igbo youth. There was a slight increase in primary abstinence among female Hausa and Fulani youth from the year 2003 to 2013. Among the Ijaws, female youth who were primary abstainers increased from 34% in 2003 to 46% in 2013. By region, primary abstinence reduced from 67% in 2003 to 61% among youth in the South West region and this decline was also evident among female youth in the South East region. However, there was an increase in the percentage of primary abstainers among female youth in 2003 (64%) to 72% in 2013. This

increase in the percentage of primary abstainers was evident among female youth in the South South.

Socio-economic characteristics

The association between education and abstinence showed that the percentage of female youth with higher education who were primary abstainers decreased from 46% in 2003 to 38% in 2008 and later increased to 43% in 2013. Among female youth with secondary education, primary abstinence ranged from 63% in 2003 to 66% in 2013. The percentage of female youth who were recent abstainers also reduced from 2003 to 2013 among youth with secondary and higher education. By work status, there was a percentage decrease in the number of primary and recent abstainers for females who were working. The percentage of female youth who were abstaining increased from 62% in 2003 to 65% in 2013 among youth who belonged to the rich quintile.

The percentage of primary and recent abstainers decreased for females who were living in households headed by women from 2003 to 2013. A slight increase in the percentage of primary abstainers was evident among youth who were exposed to mass media from 2003 to 2013. Primary abstinence ranged from 65% in 2003 to 63% in 2008 and 65% in 2013 among youth who had HIV knowledge.

4.4.2 Single sexual partnership

Demographic characteristics

By age, the prevalence of youth engaging in single sexual partnerships ranged from 86% in 2003 and 2008 to 89% in 2013 among youth aged 15-17. Results were different for youth aged 18-24. The percentage distribution of youth engaging in SSP among youth aged 18-24 reduced from 62% in 2003 to 57% in 2013. By place of residence, SSP among youth in urban areas increased slightly from 71% in 2003 to 73% in 2013 compared to a slight decrease evident among youth in rural areas (74% in 2003 vs 71% in 2013). The

percentage of youth engaging in SSP decreased from 70% in 2003 to about 64% among youth who were Christians. The results for Muslim youth showed that the percentage of youth engaging in SSP increased from 66% in 2003 to 84% in 2008 and 89% in 2013. By ethnicity, the percentage of youth engaging in SSP reduced among female Yoruba and Igbo youth from year 2003 to 2013. Different results were seen for Hausa, Fulani and Ijaw youth. For instance, 38% of Ijaw youth engaged in SSP and this percentage increased to about 50% in 2013. The percentage of youth engaging in SSP among female youth in the South West decreased from 76% in 2003 to 67% in 2013. However, there was an increase in the percentage of youth engaging in SSP among females in the North Central region (71% in 2003 vs 79% in 2013).

Socio-economic characteristics

Among females with higher education, percentage of youth engaging in SSP ranged from 57% in 2003 to 47% in 2008 and 52% in 2013. This trend was similar for youth with different levels of education. However, among female youth who were working, SSP ranged from 63% in 2003, to 60% in 2008 and 2013. There was no difference in the percentage of youth engaging in SSP among females in the rich quintile, however, percentage of youth engaging in SSP increased from 75% to 80% among youth in the poor quintile.

4.4.3 HIV Testing

Demographic characteristics

By age, there was a high percentage increase among youth testing for HIV. For instance, percentage of youth aged 18-24 testing for HIV increased from 8% in 2003 to 14% in 2008 and 24% in 2013. This increase was also evident among female youth in urban and rural areas. For all religious groups, percentage of female youth increased except for Muslim youth. The percentage of Muslim youth testing for HIV decreased from 6% in 2003 to 4% in 2008 and increased to 6% in 2013. There was a marked increase in HIV testing among youth who

belonged to the different ethnic groups expect for the Hausa's ad Fulani's. HIV testing also increased among female youth in all of the regions studied.

Socio-economic characteristics

The results show that there was no increase in HIV testing among youth with no education during the three survey years. This result was different for female youth who had some form of education. For instance, percentage of youth testing for HIV with higher education increased from 13% in 2003 to 46% in 2008. Similar increase in HIV testing was seen among female youth who were either working or not working and youth who belong to the poor, middle or rich quintile.

The percentage of HIV testing increased from 2003 to 2013 among female youth who were in male or female headed households. This increase was evident among youth who were exposed to mass media. There was no difference in the percentage of youth who tested for HIV in 2003, 2008 and 2013 among youth with low knowledge of HIV. However, there percentage of youth who tested for HIV increased from 5% in 2003 to 15% in 2013 among youth with HIV knowledge.

4.4.4. Condom use

Demographic characteristics

By age, there was an increase in the percentage of youth who used condom at last sex for youth aged 15-17 and 18-24 between the three survey years. This increase was evident for youth in both rural and urban areas and youth who were Christians and Muslims. By ethnicity, the percentage of youth who use condom at last sex reduced from 50% to 47% from 2003 to 2013. This is different from youth in other ethnic groups where condom use at last sex increased from 2003 to 2013. The increase in condom use at last sex from 2003 to 2013 increased in all of the regions studied.

Socio-economic characteristics

By education, condom use at last sex reduced from 11% in 2003 to 4% in 2013 among female youth with no education. This direction was different for youth with some type of education. For instance, condom use at last sex increased from 27% in 2003 to 41% in 2013 among youth with secondary education. The increase in condom use at last sex from 2003 to 2013 is evident among youth who were working and youth who were not working. This is similar for female youth in the different wealth quintiles.

Condom use increased between the three survey years for female youth who came from male or female headed households. Same increase was evident for youth who were exposed to mass media and youth with HIV knowledge.

Table 4.4a: Patterns of protective sexual behaviour among female youth in Nigeria

Characteristics	Abstinence %						SSP (% Yes)			HIV Testing (% Yes)			Condom Use (% Yes)		
	Primary Abstinence	Recent Abstinence	Primary Abstinence	Recent Abstinence	Primary Abstinence	Recent Abstinence	2013	2008	2003	2013	2008	2003	2013	2008	2003
	2013		2008		2003										
Age															
15-17	86.32	8.68	83.75	9.86	83.74	10.97	89.03	86.73	86.32	5.22	3.14	1	29.19	18.23	22.43
18-24	47.33	32.63	47.83	32.85	52.27	31.85	56.61	58.23	62.25	23.85	13.68	8	45.54	36.03	29.68
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.139
Place of residence															
Urban	67.44	20.52	65.26	21.04	63.69	24.48	73.69	71.36	70.85	16.71	11.92	6.22	50.99	43.96	34.45
Rural	65.51	21.2	63.17	23.49	67.25	21.73	71.34	70.87	73.84	12.5	6.86	4.4	33.8	24.48	21.65
χ^2; p-value		0.000		0.000		0.266	0.018	0.665	0.152	0.000	0.000	0.107	0.000	0.000	0.001
Religion															
Catholic	60.69	26.55	61.4	28.56	63.53	22.71	69.41	71.34	70.64	22.54	13.53	7.95	49.47	40.38	24.22
Other Christian	57.42	25.64	57.85	25.32	62.44	27.65	64.31	65.81	70.05	17.23	9.85	4.42	40.54	31.12	29.46
Muslim	86.32	9	81.57	11.18	57.45	28.82	89.41	84.07	66.21	6.22	3.39	6.11	43.36	29.18	28
Other	73.91	18.84	67.14	18.57	79.69	12.36	79.71	78.57	83.44	2.86	9.86	2.28	33.33	35.29	32.89
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.009	0.586
Ethnicity															
Yoruba	64.09	22.34	62.70	22.19	66.20	25.35	70.13	69.55	74.08	13.62	7.30	3.44	47.35	36.55	50.00
Igbo	62.58	26.53	67.98	26.67	66.10	24.43	72.09	75.10	72.73	21.71	13.23	7.59	55.51	42.54	26.71
Hausa	97.12	1.71	95.59	2.55	96.80	1.60	98.08	95.84	97.60	1.49	1.62	0.90	22.22	44.44	33.33
Fulani	98.47	1.02	94.62	4.30	94.74	0.00	99.49	96.77	94.74	3.55	0.00	0.00	100	33.33	0.00
Ijaws	45.80	24.37	34.63	27.65	34.62	46.15	50.21	40.05	38.46	12.18	6.98	12.50	36.02	16.38	12.50
Others	62.08	23.43	62.48	23.40	60.26	24.23	68.43	69.48	68.04	16.51	9.22	5.0	36.31	30.22	22.00
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.00
Region															
South West	61.14	24.61	61.65	22.45	66.58	25	67.06	68.48	75.5	14.49	7.56	3.45	47.54	37.95	50.51
North Central	72.43	20.49	71.22	19.21	63.87	26.13	79.37	78.69	70.97	15.56	7.56	4.3	43.09	29.52	28.57
North East	79.17	13.74	75.62	16.3	81.38	10.11	83.42	80.1	84.57	12.32	3.91	0.78	18.42	15.38	6.9
North West	91.54	4.73	93.04	4.01	89.68	7.1	93.35	93.92	93.55	4.82	4.4	1.39	43.28	23.33	40
South East	63.1	26.73	66.24	27.66	67.44	23.26	72.9	77.04	73.95	20.64	13.07	8.81	55.07	39.71	23.01
South South	49.17	25.84	42.4	30.69	44.22	31.79	55.05	49.46	52.17	16.25	12.36	7.4	37.57	31.37	21.08
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Educational attainment															
No education	90.73	6.24	87.8	6.9	85.71	6.35	92.75	90.55	86.51	1.17	0.52	1.23	4.55	2.56	11.11
Primary	70.9	19.28	73.49	17.14	72.91	18.44	77.74	80.27	79.33	6.94	2.41	1.62	23.33	15.38	16.22
Secondary	66.33	20.86	63.44	22.86	63.34	24.22	72.32	70.61	70.6	13.43	7.5	5.49	41.11	31.46	27.42
Higher	42.59	34.9	37.93	38.29	46.46	40.94	51.57	47.2	56.69	45.8	37.66	13.28	63.24	50.62	54.55
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Work status															
No	71.6	18.07	68.94	19.84	69.2	20.96	76.99	75.28	75.5	12.05	8.54	4.68	12.05	8.54	4.68
Yes	52.88	28.35	51.14	29.37	54.09	29.55	60.8	59.92	62.73	21.36	10.11	7.11	21.36	10.11	7.11
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.045	0.063	0.000	0.045	0.063
Wealth status															
Poor	74.35	16.95	68.02	20.31	68.39	21.28	80.21	75.77	74.59	7.65	3.2	3.43	20.99	16.05	17.21
Middle	64.58	22.23	64.39	23	70.73	18.7	71.06	71.84	75.88	12.34	6.53	3.21	35.54	25.82	16.85
Rich	64.56	21.64	62.04	23.28	62.24	25.51	70.49	68.61	70.07	18.13	12.53	6.73	50.18	40.75	36.03
χ^2; p-value		0.000		0.000		0.023	0.000	0.000	0.048	0.000	0.000	0.012	0.000	0.000	0.000
Sex household head															
Male	71	17.93	68.3	19.81	68.48	21.16	76.2	74.79	75.09	12.33	8.1	5.16	42.92	31.75	26.63
Female	55.6	27.95	53.28	29.21	57.64	28.11	63.72	61.72	65.17	20.4	11.03	5.65	41.34	33.38	31.18
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.703	0.458	0.447	0.282
Exposure to mass media															
No	71.64	17.97	70.67	19.2	72.41	19.96	77.17	76.94	78.91	10.78	4.75	3.82	33.14	23.05	17.7
Yes	57.68	25.76	53.64	27.62	56.16	27.24	64.58	61.92	63.51	21.44	15.44	6.99	52.54	41.19	36.52
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000
HIV Knowledge															
No	84.89	10.58	85.56	9.26	86.67	10	89.92	88.56	90	3.27	3.69	3.33	28.57	38.71	0
Yes	65.57	21.38	63.12	22.49	65.22	23.24	71.67	70.34	72.14	15.26	9.16	5.33	42.58	32.26	28.32
χ^2; p-value		0.000		0.000		0.048	0.000	0.000	0.003	0.000	0.002	0.628	0.069	0.446	0.277

4.5 Patterns of protective sexual behaviour among male youth in Nigeria

The results in table 4.4b present the patterns of protective sexual behaviour among male youth by various socio-demographic characteristics.

4.5.1 Abstinence

Demographic characteristics

By age, the percentage of primary abstainers among youth aged 15-17 increased from about 74% in 2003 to 92% in 2013. This is notably high compared to the increased evident among males aged 18-24 from 2003 to 2013. However, the percentage of recent abstainers among male youth aged 15-17 decreased from 13% in 2003 to 6% in 2013 but percentage of recent abstainers was about 31% for males aged 18-24 for the three survey years.

By place of residence, the percentage of primary abstainers increased among male youth in rural and urban areas but the percentage of recent abstainers decreased among male youth in both rural and urban areas. By religion, primary abstinence among male youth who were Catholics ranged from 49%% in 2003 to 52% in 2008 and 59% in 2013. Among other Christians, primary abstinence ranged from 51% in 2003 to 55% in 2013. However, among male youth who were Muslims, primary abstinence increased from 71% in 2003 to 80% in 2008 and 85% in 2013. However, recent abstinence among Muslim male youth reduced from 18% in 2003 to 10% in 2013. The association between ethnicity and abstinence showed that percentage of primary abstainers increased among male Yoruba youth from 47% in 2003 to 61% in 2013. This increase was comparable among other ethnic groups except male youth from the Ijaw ethnicity. Among the Ijaws, male youth who were primary abstainers ranged from 47% in 2003 to 40% in 2008 and 46% in 2013.

By region, primary abstinence increased among male youth in all the regions from the year 2003 to 2013 and there was a reduced percentage of recent abstinence among male youth in all of the regions.

Socio-economic characteristics

By education, there was an increase in the percentage of primary abstainers among male youth in all the education groups except males who had attained higher education. The percentage of primary abstinence among males with higher education reduced from 48% in 2003 to 41% in 2013. This pattern was similar for recent abstinence and educational attainment. For all the educational groups, the percentage of recent abstinence among youth decreased from 2003 to 2013 but there was an increase in the percentage of recent abstinence among youth with higher education from year 2003 (33%) to 2013 (41%). By work status, there was a percentage increase in the percentage of primary abstainers and decrease in the percentage of and recent abstainers for males who were working and males who were not working. The percentage of male youth who were abstaining increased from 61% in 2003 to 83% in 2013 among youth who belonged to the poor quintile.

The association between abstinence and sex of household head showed that there was a percentage increase in the percentage of primary abstainers and decrease in the percentage of and recent abstainers for males who were in female headed households and males who were in male headed households. A slight increase in the percentage of primary and recent abstainers was evident among youth who were exposed to mass media from 2003 to 2013. Primary abstinence ranged from 58% in 2003 to 64% in 2008 and 68% in 2013 among youth who had HIV knowledge.

4.5.2 Single sexual partnership

Demographic characteristics

The percentage distribution of young males who reported a single sexual partnership among male youth between 2003 and 2013 was about 90% and about 60% for male youth aged 18-24. By place of residence, SSP increased among both males in urban and rural areas. There were slight increases in the percentage of male youth engaging in SSP among Christians but the percentage of Muslim youth engaging in SSP increased from about 80% in 2003 to 90% in 2013. This increase was also evident among males practicing "other" religion (57% in 2003 vs 74% in 2013).

By ethnicity, the percentage of youth engaging in SSP increased among males in the different ethnic groups for the years 2003, 2008 and 2013 except for males belonging to the Ijaw ethnic group. The percentage of SSP reduced from 67% in 2003 to 56% in 2013 among male youth from the Ijaw ethnic group. The ethnicity results are similar to what was found in the association between region and SSP. There was a percentage increase male youth engaging in SSP for males in all of the regions except males in the South South (60% in 2003 vs 57% in 2013).

Socio-economic characteristics

The percentage distribution of males engaging in SSP increased among males with primary and secondary education but percentage distribution of SSP decreased from 57% in 2003 to 53% in 2013 among males with higher education. There was an increase in the percentage of youth engaging in SSP for males who were working and males who were not working. By wealth status, percentage of youth engaging in SSA increased from 66% in 2003 to 70% among youth in the rich quintile.

There was a percentage increase in the percentage of males engaging in SSP from male and female headed households. This increase was also evident among youth with HIV knowledge.

4.5.3 HIV Testing

Demographic characteristics

HIV testing was about 3% for the three survey years among male youth aged 15-17. Among male youth aged 18-24, HIV testing increased from 10% in 2003 to 14% in 2013. This increase was also evident among male youth in urban and rural areas although slight. For all religious groups, percentage of male youth increased except for Muslim youth. The percentage of Muslim youth testing for HIV decreased from 8% in 2003 to 4% in 2008 and increased to 6% in 2013. There was an increase in HIV testing among Yoruba and Igbo youth but there was a reduction in HIV testing among youth belonging to the Hausa, Fulani and Ijaw ethnic group. There was an increase in the percentage of male youth testing for HIV testing in all of the regions studied except makes in North West.

Socio-economic characteristics

The results show that there was no increase in HIV testing among male youth with no education during the three survey years. This result was different for male youth who had primary education as percentage of HIV testing ranged from 5% in 2003 to 4% in 2008 and 2013. In addition, HIV testing among male youth with higher education ranged from 31% in 2003 to 40% in 2013. HIV testing increased from 8% in 2003 to 12% in 2013 among male youth who were working. This increase was similar among male youth in the middle and rich quintile.

The percentage of HIV testing increased from 2003 to 2013 among male youth who were in male or female headed households. This increase was evident among youth who were exposed to mass media. There was no difference in the percentage of youth who tested for HIV in 2003, 2008 and 2013 among youth with no knowledge of HIV. However, there percentage of youth who tested for HIV increased from 8% in 2003 to 10% in 2013 among youth with HIV knowledge.

4.5.4 Condom use

Demographic characteristics

By age, there was an increase in the percentage of youth who used condom at last sex for youth aged 15-17 and 18-24 between the three survey years. This increase was evident for youth in both rural and urban areas and youth who were Christians and Muslims.

By ethnicity, the percentage of youth who use condom at last sex reduced from 68% to 64% among Yoruba males from 2003 to 2013. This decline was similar among male Fulani youth as condom use at last sex reduced from 60% in 2003 to 25% in 2013. Condom use increased from 2003 to 2013 for all the other ethnic groups. The increase in condom use at last sex from 2003 to 2013 increased in all of the regions studied except among males in South West.

Socio-economic characteristics

By education, condom use at last sex increased among males with no education, primary education and secondary education but there was a decrease in the percentage of youth who used condom at last sex from 2003 to 2013 among males with higher education. The increase in condom use at last sex from 2003 to 2013 ranged from 8% to 12% among male youth who were working. This increase is similar for male youth in the different wealth quintiles.

Condom use increased between the three survey years for male youth who came from male or female headed households. Same increase was evident for youth who were exposed to mass media and youth with HIV knowledge.

Table 4.4b: Patterns of protective sexual behaviour among male youth in Nigeria

Characteristics	Abstinence %						SSP (% Yes)			HIV Testing (% Yes)			Condom Use (% Yes)		
	Primary Abstinence	Recent Abstinence	Primary Abstinence	Recent Abstinence	Primary Abstinence	Recent Abstinence	2013	2008	2003	2013	2008	2003	2013	2008	2003
	2013		2008		2003										
Age															
15-17	92.11	6.29	84.93	11	83.88	12.81	94.64	89.52	91.67	3.25	3.33	3.18	46.09	27.98	31.82
18-24	54.8	30.49	53.49	31.52	48.21	30.77	64.41	64.17	61.05	14.28	10.52	10.02	57.83	49.19	48.12
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.01	0.000	0.143
Place of residence															
Urban	67.42	23.7	63.68	24.91	59.17	27.13	75.23	71.98	69.66	12.74	10.9	10.34	66.82	60.22	59.68
Rural	70.63	19.15	64.51	24.3	58.18	24.09	76.81	73.31	70.53	7.91	6.63	6.07	48.65	38.47	35.04
χ^2; p-value		0.000		0.856		0.235	151	0.339	0.786	0.000	0.000	0.028	0.000	0.000	0.000
Religion															
Catholic	59.38	28.53	52.21	33.45	48.5	30.54	66.44	64.3	61.21	15.72	14.07	10.76	63.6	50.72	40.91
Other Christian	55.11	30.85	52.62	32.02	51.28	30.77	64.23	62.9	64.19	13.07	9.54	7.51	55.45	48.62	50.43
Muslim	85.39	9.93	80.22	13.8	70.67	17.89	90.02	86.07	80.49	5.63	4.49	7.51	56.58	38.75	48.05
Other	62.96	20.37	55.77	30.77	42.86	42.86	73.58	63.46	57.14	7.41	15.56	0	33.33	26.32	0
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.525	0.032	0.005	0.239
Ethnicity															
Yoruba	61.08	27.95	52.34	32.51	47.45	36.50	69.03	60.41	55.15	11.32	10.23	6.82	64.66	60.20	68.25
Igbo	60.31	31.92	56.27	34.89	50.00	35.53	71.80	70.48	66.67	14.34	11.73	13.70	63.90	65.78	53.85
Hausa	95.85	2.93	94.15	4.80	85.26	12.18	97.64	97.78	92.16	3.51	2.76	6.54	58.33	47.83	20.00
Fulani	89.97	9.03	81.99	14.94	71.43	14.29	95.32	88.12	88.46	5.03	2.74	8.00	25.00	6.45	60.00
Ijaws	45.58	32.65	39.66	32.33	46.67	46.67	55.82	47.41	66.67	4.76	9.46	7.14	37.12	28.23	33.33
Others	60.23	25.51	58.24	27.40	54.28	22.71	67.82	67.96	66.36	13.02	9.04	6.90	55.88	39.55	35.83
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.182	0.000	0.000	0.000
Region															
South West	60.97	27.96	51.01	33.69	48.34	36.42	68.72	58.24	58	10.75	10.86	6.25	59.86	60.51	63.08
North Central	60.29	24.77	61.49	25.67	50	26.25	68.68	71.61	61.01	13.31	8.3	11.84	69.06	39.52	44.44
North East	78.84	14.73	72.55	19.63	60.75	20.56	85.17	82.03	80.21	11.63	3.08	8.91	33.56	21.9	26.67
North West	96.11	2.47	94.12	4.92	89.35	8.28	97.45	96.4	92.9	3.04	3.3	5.42	38.46	36.67	33.33
South East	59.65	33.43	56.4	35.12	51.33	37.17	72.54	71.01	67.57	13.8	13.22	9.91	59.89	63.83	52.63
South South	48.48	33.48	46.08	32.88	45.67	28.35	56.73	56.28	60	11.59	11.3	6.96	54.62	42.98	39.62
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.317	0.000	0.000	0.013

Educational attainment															
No education	93.04	5.57	88.27	8.84	85.92	11.27	95.18	92.42	95.77	1.14	1.34	1.54	24.39	9.09	0
Primary	76.42	15.34	75.23	17.76	63.22	24.14	81.39	82.84	75.14	4.26	3.53	5.3	38.17	24.56	17.78
Secondary	66.48	22.92	60.11	27.43	54.55	27.08	74.14	69.48	66.21	9.47	7.62	7.32	55.84	46.29	50
Higher	41.74	40.85	38.24	38.24	48.15	33.33	52.68	49.34	57.41	39.64	30.39	31.48	79.44	72.67	82.61
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Work status															
No	76.98	16.79	66.52	23.25	62.82	23.63	82.87	73.71	72.32	7.9	8.11	7.85	7.9	8.11	7.85
Yes	60.19	26.15	62.36	25.54	50.36	29.5	68.24	72.18	65.66	12.42	8.2	8.33	12.42	8.2	8.33
χ^2; p-value		0.000		0.012		0.002	0.000	0.251	0.052	0.000	0.911	0.815	0.000	0.911	0.815
Wealth status															
Poor	82.71	11.44	71.93	19.33	61.36	19.7	87.28	78.71	71.98	5.06	4.15	4.15	39.18	26.2	25
Middle	65.47	22.56	64.58	25.13	63.82	23.03	72.9	73.79	78.52	9.03	7.46	5.37	50.65	42.01	42.86
Rich	62.18	26.82	58.23	28.13	54.99	30.17	70.32	67.93	65.84	13.77	11.21	11.53	64.67	58.07	59.59
χ^2; p-value		0.000		0.000		0.018	0.000	0.000	0.011	0.000	0.000	0.002	0.000	0.000	0.000
Sex household head															
Male	70.8	19.74	64.64	24.26	60.18	24.52	77.42	73.51	71.62	9.53	8.19	8.66	56.09	45.85	47.76
Female	61.9	27.6	61.88	25.95	51.95	29.87	70.05	69.07	63.58	12.27	8.29	5.63	59.38	49.07	43.33
χ^2; p-value		0.000		0.377		0.173	0.000	0.017	0.051	0.000	0.93	0.232	0.29	0.386	0.546
Exposure to mass media															
No	79.11	14.64	75.13	17.49	67.58	21.7	84.38	81.21	80.33	5.43	4.27	4.82	48.26	34.93	33.33
Yes	54.86	30.56	54.55	30.76	49.78	29.6	64.09	65.4	60.42	16.66	11.19	10.91	62.21	51.93	52.15
χ^2; p-value		0.000		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.006
HIV Knowledge															
No	93.65	5.82	92.93	13.41	85.71	14.29	96.3	87.8	85.71	1.06	2.44	0	50	30	.
Yes	68.46	21.61	63.88	24.72	58.41	25.61	75.48	72.57	69.99	10.3	8.33	8.18	56.85	46.52	46.92
χ^2; p-value		0.000		0.001		0.309	0.000	0.002	0.365	0	0.055	0.43	0.696	0.297	0.348

4.6 Sexual behaviours among youth in selected states

Out of the 2,339 respondents in all the states, 68% of them had never had sex. Figure 1 shows the percentage distribution of youth who have never had sex by the selected states. Osun state had the highest number of youth who were abstaining compared to Edo state which had the lowest. By gender, 58% of the females were abstainers compared to 43% of the males. This gender differential was evident in all of the study sites except Edo state where there no difference in the percentage of females and males primarily abstaining from sex. The mean age at first sex as 19 years and condom use at first sex was about 41% among the youth who reported yes to have had sex. The percentage distribution of condom use among the youth has been presented in figure 4.4. The lifetime number of sexual partners among the youth ranged from 1-10 although 27% of the youth reported to have had 2 lifetime sexual partners compared to 16% who reported to have had 3.

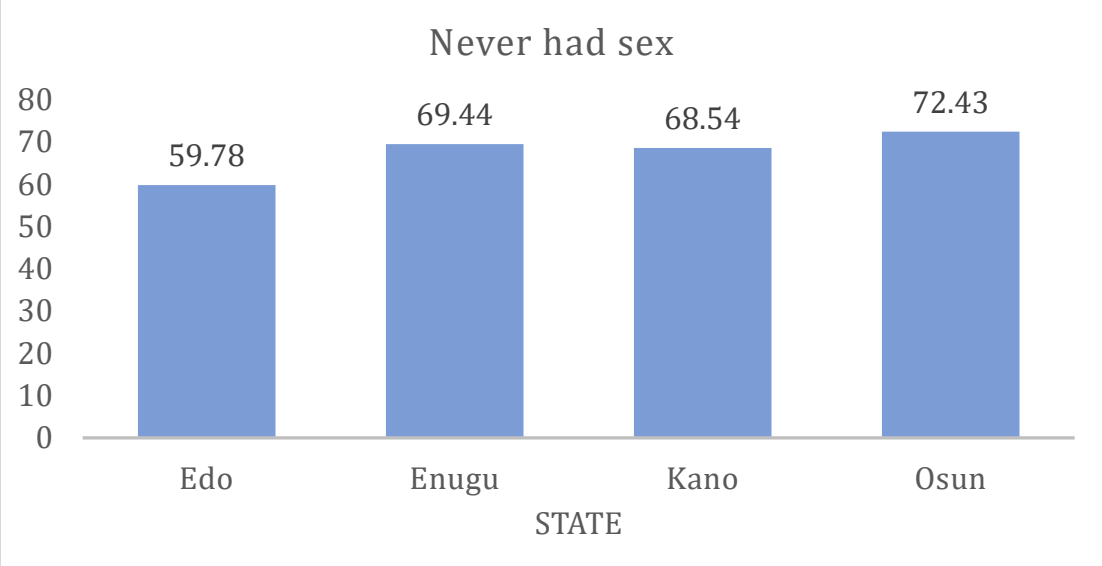

Figure 4.3: Percentage of youth who have never had sex

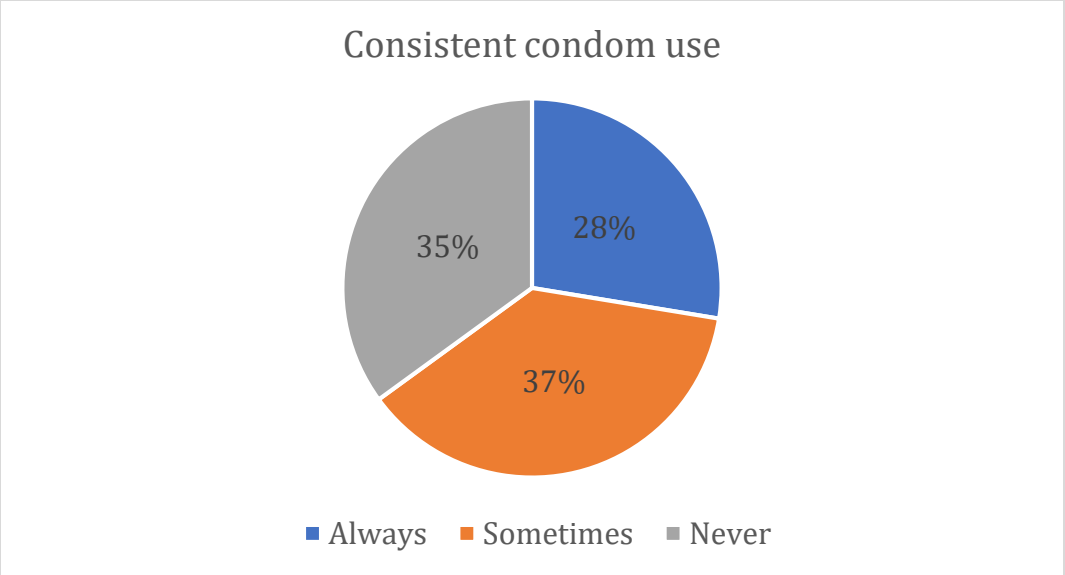

Figure 4.4: Percentage distribution of condom use among youth

More than half of the youth who had ever had sex reported that they and partner were both willing to have sex as shown in figure 4.5.

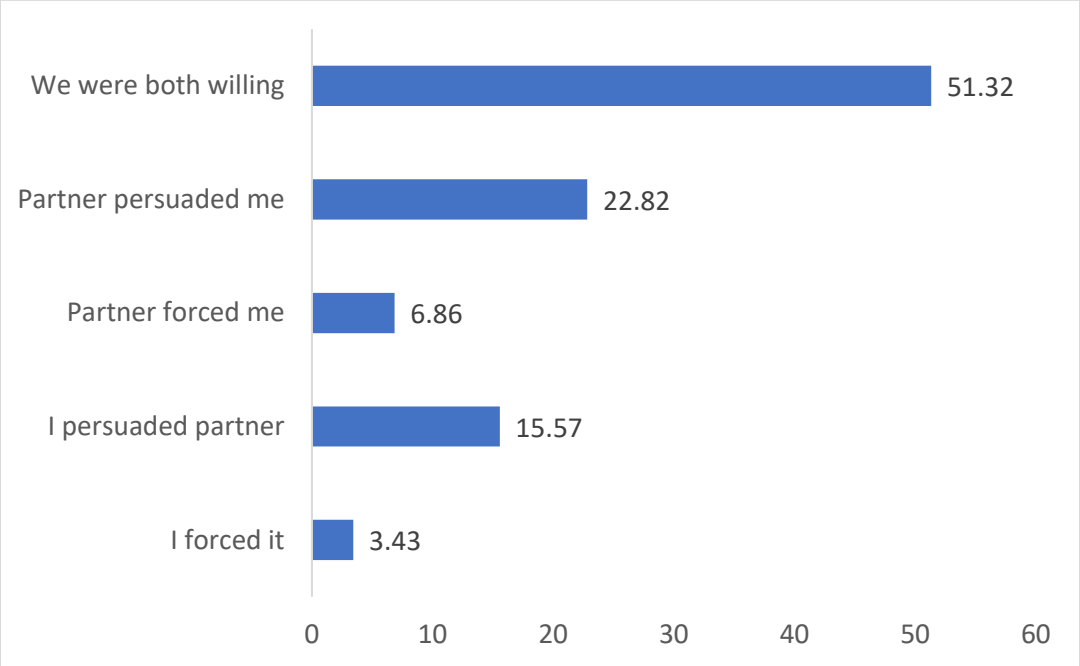

Figure 4.5: Percentage distribution of young people by reason for first sex

Of the 758 youth who had ever had sex, 25% of them reported experience of one-night stand compared to 75% of the youth who have never engaged in one night stand as shown in figure 4.6. Gender differentials were evident as more than half of the males (63%) experienced one-night stand compared to about 37% of the females.

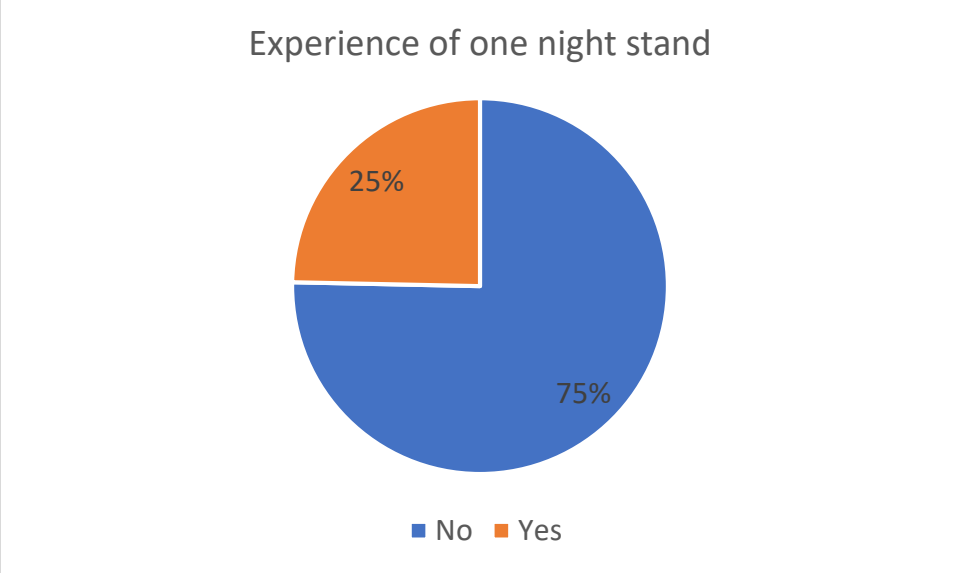

Figure 4.6: Percentage distribution of youth who have had one night stands

More than three quarters of the youth reported that they have not experienced receiving (85%) and giving (83%) cash for sex.

More than three quarters of the youth who were abstaining believed that sex is wrong before marriage (78%), more than half stated they were not ready and 36% of them had never had opportunity. A number of the youth expressed fear as reasons why they have never had sex. For instance, 63% of the youth were afraid of getting pregnant while 71% of the youth were afraid of contacting sexually transmitted infections.

Chapter 5

Multivariate Analysis of Protective Sexual Behaviour Individual and Household Determinants of Protective Sexual Behaviours among youth in Nigeria

This chapter presents the determinants of protective sexual behaviours among youth in Nigeria.

5.1 Bivariate Associations

The results in table 5.1a present the unadjusted association between individual characteristics and abstinence among female youth.

5.1.1 Abstinence among females

Demographic characteristics

The results show that age was significantly associated with primary abstinence in 2003 and 2013 only. For instance, in 2013, female youth aged 18-24 were less likely to be primary abstainers (RRR- 0.13; CI – 0.11-0.16). The odds of being a recent abstainer relative to being active was lower among female youth aged 18-24 in 2008 (RRR- 0.20; CI – 0.14-0.29) alone. Compared to female youth who were Catholic, other Christians had lower odds of being primary abstainers in 2003 (RRR- 0.56; CI – 0.45-0.70) and 2013 (RRR- 0.71; CI – 0.58-0.86) while Muslims had higher odds of being abstainers in 2003 (RRR- 1.83; CI – 1.38-2.43) and 2013 (RRR- 3.87; CI – 2.99-4.99). Female youth who were other Christians had higher odds of being recent abstainer's in 2003 (RRR- 1.69; CI – 1.05-2.71) but lower odds of being recent abstainers in 2013 (RRR- 0.52; CI – 0.41-0.67). Ethnicity was significantly associated with abstinence among female youth in the three survey years. For instance, Hausa female youth (RRR- 7.72; CI – 1.81-32.86) had higher odds of being primary abstainers compared to Yoruba youth in 2003 while Ijaw youth (RRR- 0.22; CI – 0.07-0.73) had lower odds of being primary abstainers compared to Yoruba youth in 2003. These associations were similar in 2008 and 2013.

By region, female youth in all the regions studied had higher odds of being primary abstainers in 2003 and 2013 except females in South South who had lower odds of being primary abstainers. This was in comparison to the youth in the South West region. There was no association between recent abstinence and region for 2003 except in the North east where females had lower odds of being recent abstainers. This association changed in 2008, albeit not significant. In 2008, females in the North West had higher odds of being recent abstainers while females in the South South had lower odds of being recent abstainers. In 2013, females in North Central, North East and South East had higher odds of being recent abstainers.

Socio-economic characteristics

Higher education among females was associated with lower odds of being primary abstainers for all the three survey years and this association was similar for females who were working. This is in comparison with females with no education and females who were not working. The association between wealth status and abstinence showed that females from the rich quintile had lower odds of being primary abstainers for survey year 2013 and 2008.

Females who were living in household headed by females had lower odds of being primary abstainers for the years 2003, 2008 and 2013. This association was similar for females exposed to mass media and females who had high HIV knowledge.

Table 5.1a: Unadjusted association between individual, household characteristics and abstinence among females

Characteristics	2013		2008		2003	
	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active
Age						
15-17						
18-24	0.13 (0.11-0.16) ***	0.93 (0.77-1.13)	0.18 (0.15-0.22) ***	1.10 (0.89-1.34)	0.20 (0.14-0.29) ***	0.96 (0.63-1.46)
Place of residence						
Urban						
Rural	0.87 (0.77-1.00)	0.93 (0.80-1.09)	0.99 (0.86-1.15)	1.14 (0.97-1.35)	1.13 (0.84-1.52)	0.95 (0.68-1.32)
Religion						
Catholic						
Other Christian	0.71 (0.58-0.86) ***	0.72 (0.58-0.89) **	0.56 (0.45-0.70) ***	0.52 (0.41-0.67) ***	1.36 (0.89-2.08)	1.69 (1.05-2.71) *
Muslim	3.87 (2.99-4.99) ***	0.92 (0.68-1.24)	1.83 (1.38-2.43) ***	0.54 (0.39-0.74) ***	0.90 (0.61-1.32)	1.27 (0.82-1.95)
Other	2.14 (0.84-5.45)	1.24 (0.43-3.56)	0.76 (0.37-1.56)	0.45 (0.19-1.07)	2.17 (1.39-3.37)	0.94 (0.55-1.59)
Ethnicity						
Yoruba						
Igbo	1.21 (0.97-1.51)	1.48 (1.15-1.89) ***	1.87 (1.46-2.39) ***	2.17 (1.65-2.85) ***	0.89 (0.55-1.44)	0.85 (0.50-1.45)
Hausa	17.52 (9.49-32.34) ***	0.88 (0.40-1.94)	12.41 (6.06-25.39) ***	0.93 (0.37-2.36)	7.72 (1.81-32.86) ***	0.33 (0.04-2.47)
Fulani	40.88 (5.69-293.32) ***	1.21 (0.10-13.48)	21.20 (2.93-153.11) ***	2.72 (0.30-24.54)	2.29 (0.29-17.83)	4.45 (1.98-4.53)
Ijaws	0.32 (0.25-0.42) ***	0.49 (0.36-0.66) ***	0.22 (0.16-0.29) ***	0.49 (0.36-0.67) ***	0.22 (0.07-0.73) *	0.79 (0.26-2.45)
Others	0.90 (0.76-1.08)	0.98 (0.80-1.20)	1.06 (0.88-1.28)	1.12 (0.91-1.39)	0.49 (0.32-0.76) ***	0.52 (0.32-0.83) ***
Region						
South West						
North Central	2.38 (1.86-3.05) ***	1.67 (1.27-2.21) ***	1.91 (1.52-2.42) ***	1.42 (1.08-1.85) **	0.80 (0.47-1.35)	0.87 (0.49-1.55)
North East	2.60 (1.94-3.48) ***	1.12 (0.79-1.58)	2.41 (1.78-3.25) ***	1.42 (1.00-2.02) *	1.20 (0.64-2.26)	0.39 (0.18-0.86) *
North West	5.72 (3.99-8.20) ***	0.73 (0.46-1.16)	8.12 (4.67-14.11) ***	0.96 (0.47-1.95)	3.51 (1.34-9.18) *	0.74 (0.24-2.28)
South East	1.44 (1.14-1.82) ***	1.52 (1.17-1.96) ***	2.80 (2.10-3.72) ***	3.21 (2.35-4.37) ***	0.91 (0.56-1.49)	0.84 (0.49-1.43)
South South	0.45 (0.38-0.55) ***	0.59 (0.48-0.73) ***	0.40 (0.33-0.49) ***	0.80 (0.64-1.00)	0.23 (0.14-0.36) ***	0.44 (0.27-0.72)
Educational attainment						
No education						
Primary	0.24 (0.14-0.40) ***	0.95 (0.51-1.78)	0.47 (0.28-0.78) ***	1.40 (0.74-2.67)	0.77 (0.36-1.64)	2.66 (0.95-7.40)
Secondary	0.17 (0.10-0.27) ***	0.79 (0.44-1.40)	0.27 (0.17-0.44) ***	1.28 (0.71-2.31)	0.47 (0.24-092) *	2.43 (0.94-6.29)
Higher	0.06 (0.03-0.10) ***	0.75 (0.41-1.37)	0.09 (0.05-0.15) ***	1.23 (0.66-2.30)	0.34 (0.14-0.79) *	4.06 (1.37-12.02) *
Work status						
No						
Yes	0.40 (0.35-0.46) ***	0.86 (0.73-1.01)	0.42 (0.36-0.49) ***	0.85 (0.71-1.01)	0.46 (0.34-0.64) ***	0.84 (0.59-1.20)
Wealth status						

Poor						
Middle	0.57 (045-0.71) ***	0.86 (0.66-1.11)	0.87 (0.70-1.09)	1.04 (0.81-1.34)	1.01 (0.64-1.58)	0.85 (0.51-1.44)
Rich	0.54 (0.45-0.66) ***	0.80 (0.64-1.00)	0.72 (0.60-0.86) ***	0.91 (0.73-1.12)		
Sex household head						
Male						
Female	0.52 (0.45-0.60) ****	1.04 (0.89-1.22)	0.52 (0.45-0.61) ***	11.00 (0.84-1.18)	0.61 (0.44-0.83) ***	0.96 (0.67-1.37)
Exposure to mass media						
No						
Yes	0.50 (0.44-0.57) ***	0.89 (0.76-1.04)	0.41 (0.35-0.47) ***	0.77 (0.65-0.91) ***	0.35 (0.26-0.48) ***	0.62 (0.44-0.87) ***
HIV Knowledge						
No						
Yes	0.26 (0.16-0.43) ***	0.70 (0.40-1.22)	0.27 (0.16-0.47) ***	0.93 (0.48-1.80)	0.21 (0.02-1.61)	0.67 (0.06-6.49)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.1.2 Abstinence among males

The results in table 5.1b present the unadjusted association between individual characteristics and abstinence among male youth.

Demographic characteristics

The results for males in table 4b show that age was significantly associated with primary abstinence for youth in 2003, 2008 and 2013. This association was similar for recent abstainers in 2013. For the three survey years, being a Muslim male youth was associated with higher odds of primary abstinence. Male youth from the Hausa ethnic group had higher odds of being primary abstainers compared to male Yoruba youth in all the three survey years. Male youth who were from the Ijaw ethnic group had higher odds of being primary abstainers in 2008 and 2013 compared to Yoruba youth. In 2013, females in the North East, North West and South East had higher odds of being primary abstainers compared to their counterparts in the South West but females in North Central and South South had lower odds of being primary abstainers.

Socio-economic characteristics

Males with higher education had lower odds of being primary abstainers compared to their counterparts with no education in 2003, 2008 and 2013. This negative association was similar for male youth who were working (compared to counterparts who were not working) and male youth from the rich households (compared to male youth from poor households) in 2008 and 2013

Other characteristics

Males who were living in household headed by females had lower odds of being primary abstainers in 2013 compared to counterparts in male headed households and male youth who were exposed to mass media had lower odds of being primary abstainers during the three survey years compared to their counterparts who were not exposed to mass media.

Table 5.1b: Unadjusted association between individual characteristics and abstinence among males

Characteristics	2013		2008		2003	
	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active
Age						
15-17						
18-24	0.06 (0.04-0.09) ***	0.52 (0.36-0.76) ***	0.17 (0.13-0.22) ***	0.77 (0.57-1.06)	0.09 (0.04-0.18) ***	0.37 (0.16-0.84) *
Place of residence						
Urban						
Rural	0.90 (0.76-1.08)	0.70 (0.57-0.85) ***	1.03 (0.84-1.25)	0.99 (0.79-1.23)	0.75 (0.51-1.12)	0.68 (0.44-1.06)
Religion						
Catholic						
Other Christian	0.79 (0.61-1.03)	0.93 (0.70-1.22)	0.94 (0.71-124)	0.89 (0.66-1.19)	1.23 (0.74-2.03)	1.17 (0.68-2.02)
Muslim	3.72 (2.78-4.96) ***	0.90 (0.65-1.24)	3.68 (2.69-5.02) ***	0.98 (0.70-1.39)	2.67 (1.58-4.49) ***	1.07 (0.59-1.93)
Other	0.76 (0.35-1.66)	0.51 (0.20-1.29)	1.13 (0.48-2.69)	0.97 (0.38-2.47)	1.29 (0.13-12.89)	2.05 (0.20-20.61)
Ethnicity						
Yoruba						
Igbo	1.39 (0.99-1.95)	1.61 (1.12-2.31) **	1.84 (1.29-2.62) ***	1.83 (1.26-2.66) ***	1.16 (0.59-2.30)	1.08 (0.53-2.18)
Hausa	14.14 (8.34-23.94) ***	0.94 (0.51-1.74)	25.89 (12.98-51.64) ***	2.12 (0.99-4.52)	11.25 (3.72-34.00) ***	2.09 (0.63-6.86)
Fulani	16.09 (5.05-51.30) ***	3.53 (1.04-11.92)	7.74 (3.70-16.18) ***	2.27 (1.02-5.02)	1.69 (0.52-5.49)	0.44 (0.10-1.92)
Ijaws	0.37 (0.25-0.54) ***	0.58 (0.39-0.87)	0.40 (0.27-0.60) ***	0.53 (0.35-0.80) ***	2.36 (0.27-20.34)	3.08 (0.35-26.55)
Others	0.75 (0.59-0.97) *	0.70 (0.53-0.92)	1.17 (0.91-1.51)	0.88 (0.67-1.16)	0.79 (0.46-1.38)	0.43 (0.24-0.78) ***
Region						
South West						
North Central	0.73 (0.55-0.96) *	0.65 (0.48-0.89) **	1.43 (1.07-1.91) *	0.90 (0.66-1.23)	0.66 (0.36-1.21)	0.46 (0.24-0.89) *
North East	2.22 (1.59-3.10) ***	0.90 (0.62-1.32)	2.77 (1.96-3.93) ***	1.13 (0.77-1.67)	1.02 (0.51-2.03)	0.46 (0.21-1.00)
North West	12.35 (7.57-20.14) ***	0.69 (0.38-1.25)	29.37 (14.19-60.80) ***	2.32 (1.05-5.12) *	11.89 (3.96-35.65) ***	1.46 (0.43-4.92)
South East	1.56 (1.08-2.26) *	1.91 (1.29-2.82) ***	1.99 (1.35-2.94) ***	1.88 (1.25-2.82) ***	1.40 (0.65-3.01)	1.35 (0.61-2.97)
South South	0.47 (0.36-0.62) ***	0.72 (0.54-0.95) *	0.65 (0.49-0.86) ***	0.70 (0.52-0.95) *	0.55 (0.29-1.04)	0.45 (0.23-0.89)
Educational attainment						
No education						
Primary	0.13 (0.07-0.26) ***	0.46 (0.22-0.96) *	0.35 (0.19-0.62) ***	0.82 (0.42-1.60)	0.16 (0.03-0.72) *	0.47 (0.09-2.44)
Secondary	0.09 (0.05-0.17) ***	0.54 (0.27-1.05)	0.15 (0.09-0.26) ***	0.71 (0.40-1.28)	0.09 (0.02-0.40) ***	0.36 (0.07-1.77)
Higher	0.03 (0.01-0.06) ***	0.58 (0.28-1.19)	0.05 (0.02-0.09) ***	0.53 (0.28-1.00)	0.08 (0.01-0.41) ***	0.45 (0.07-2.54)
Work status						

No						
Yes	0.35 (0.29-0.42) ***	0.70 (0.57-0.86) ***	0.79 (0.65-0.95) *	0.92 (0.75-1.14)	0.53 (0.36-0.80) ***	0.83 (0.53-1.30)
Wealth status						
Poor						
Middle	0.38 (0.30-0.49) ***	0.96 (0.71-1.29)	0.76 (0.57-1.00)	1.10 (0.81-1.50)	1.49 (0.84-2.66)	1.68 (0.85-3.29)
Rich	0.39 (0.31-0.50) ***	1.24 (0.95-1.62)	0.51 (0.41-0.64) ***	0.93 (0.72-1.19)	1.14 (0.74-1.74)	1.95 (1.19-3.20)
Sex household head						
Male						
Female	0.78 (0.63-0.98) *	1.25 (0.98-1.60)	0.87 (0.67-1.12)	0.97 (0.73-1.29)	0.72 (0.44-1.17)	1.02 (0.60-1.74)
Exposure to mass media						
No						
Yes	0.29 (0.24-0.35) ***	0.89 (0.73-1.09)	0.36 (0.29-0.44) ***	0.88 (0.70-1.10)	0.38 (0.25-0.57) ***	0.70 (0.44-1.12)
HIV Knowledge						
No						
Yes	0.03 (0.01-0.27) ***	0.19 (0.02-1.53)	0.24 (0.07-0.78) *	0.59 (0.16-2.12)	na	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2 Unadjusted association between individual characteristics and abstinence among youth in selected states

The results in table 5.1c show the unadjusted association between characteristics and abstinence. By demographic characteristics, there was no association between sex and primary abstinence but males in Enugu had lower odds of abstaining compared to their female counterparts. Youth aged 18-24 had lower odds of abstaining compared to their counterparts aged 15-17. In Edo state, youth from the rural areas had higher odds of being primary abstainers compared to their counterparts in urban areas while youth in sub-urban Enugu state had lower odds of abstaining compared to counterparts in urban areas. In addition, youth in sub-urban Kano has higher odds of abstaining compared to counterparts in urban areas. Muslim youth had higher odds of abstaining while other Christians had lower odds of abstaining compared to their Catholic counterparts. Youth who reported religion to be very important had higher odds of abstinence compared to youth who reported that religion was not important to them.

By education, higher education was associated with higher odds of abstinence compared to counterparts with no education while youth who were working had lower odds of abstaining compared to counterparts who were not working.

By family characteristics, having a mother and father alive was associated with higher odds of abstinence among youth compared to youth who did not have both of their parents alive. This relationship was similar to that of parental monitoring where youth who reported high parental monitoring had higher odds of abstaining compared to their counterparts with low parental monitoring. Youth who discussed sex related matters with mother or father had lower odds of abstaining. Youth who had gotten drunk in the last 30 days also had lower odds of abstaining. Youth with high self-efficacy had higher odds of abstaining compared to counterparts with low self-efficacy.

Table 5.1c: Unadjusted association between individual characteristics and primary abstinence among youth in selected states

Characteristics	Edo	Enugu	Kano	Osun	Total (2,339)
Sex					
Female					
Male	0.97 (0.67-1.41)	0.55 (0.39-0.78) ***	0.93 (0.66-1.31)	0.76 (0.52-1.13)	0.84 (0.71-1.00)
Age					
15-17					
18-24	0.04 (0.02-0.09) ***	0.27 (0.14-0.55) ***	0.33 (0.17-0.64) ***	0.13 (0.05-0.30) ***	0.15 (0.10-0.22) ***
Place of Residence					
Urban					
Sub-urban	0.77 (0.47-1.26)	0.56 (0.35-0.89)*	2.99 (1.90-4.70) ***	1.16 (0.70-1.92)	0.91 (0.74-1.12)
Rural	2.26 (1.28-3.98) ***	0.69 (0.44-1.09)	1.13 (0.72-1.76)	0.65 (0.42-1.01)	1.06 (0.85-1.32)
Religion					
Catholic					
Other Christian	0.49 (0.33-0.71) ***	0.67 (0.47-0.95) *	1.22 (0.53-2.78)	1.59 (0.83-3.05)	0.72 (0.58-0.89) ***
Muslim	1.62 (0.66-3.96)	0.37 (0.05-2.68)	5.01 (2.58-9.76) ***	2.36 (1.13-4.93) *	1.38 (1.09-1.75) **
Other	0.84 (0.32-2.22)	0.55 (0.15-2.02)	na	0.94 (0.23-3.84)	0.66 (0.35-1.26)
Importance of Religion					
Important					
Not important	0.75 (0.45-1.27)	0.24 (0.07-0.82) *	0.21 (0.02-1.93)	0.41 (0.12-1.35)	0.64 (0.42-0.96) *
Very important	0.50 (0.34-0.72) ***	1.21 (0.85-1.72)	3.07 (2.02-4.68) ***	2.11 (1.41-3.15) ***	1.40 (1.17-1.69) ***
Religion_Head household					
Catholic					
Other Christian	0.47 (0.32-0.70) ***	0.64 (0.45-0.91) *	2.07 (0.97-4.42)	1.16 (0.62-2.18)	0.77 (0.63-0.95) *
Muslim	1.13 (0.52-2.43)	0.54 (0.08-3.29)	11.57 (6.52-20.54) ***	1.75 (0.86-3.57)	1.78 (1.40-2.27) ***
Other	1.16 (0.39-3.40)	0.14 (0.02-0.75) *	na	2.42 (0.26-22.44)	0.71 (0.35-1.43)
Educational Attainment					
No education					
Primary	8.60 (4.14-17.85) ***	26.00 (2.87-234.80) ***	0.41 (0.08-2.07)	na	6.08 (3.51-10.53) ***
Secondary	4.57 (2.37-8.82) ***	27.46 (3.44-219.15) ***	0.55 (0.11-2.66)	na	4.88 (2.96-8.04) ***
Higher	1.58 (0.78-3.21)	9.43 (1.16-76.67) *	0.61 (0.12-3.02)	0.25 (0.17-0.36) ***	2.09 (1.24-3.51) ***
Ever work for pay					
No					
Yes	0.38 (0.26-0.56) ***	0.24 (0.16-0.34) ***	0.32 (0.22-0.47) ***	0.29 (0.19-0.43) ***	0.33 (0.27-0.39) ***
Father Alive					

No					
Yes	0.97 (0.67-1.40)	1.60 (1.06-2.43) *	1.89 (1.30-2.75) ***	1.58 (0.88-2.84)	1.53 (1.25-1.88) ***
Mother Alive					
No					
Yes	1.25 (0.82-1.92)	1.23 (0.75-2.04)	1.22 (0.74-2.03)	1.71 (0.87-3.37)	1.38 (1.08-1.77) *
Family structure					
Living with both parents					
Mother alone	0.82 (0.48-1.40)	0.52 (0.33-0.83) ***	0.29 (0.17-0.49) ***	0.37 (0.22-0.62) ***	0.48 (0.37-0.62) ***
Father alone	0.33 (0.19-0.59) ***	0.61 (0.32-1.15)	0.47 (0.23-0.95) *	0.63 (0.30-1.35)	0.46 (0.33-0.62) ***
Neither parent	0.65 (0.43-0.98) *	0.39 (0.25-0.61) ***	0.12 (0.08-0.19) ***	0.45 (0.23-0.89) *	0.32 (0.26-0.40) ***
Parental monitoring					
Low					
medium	2.14 (1.48-3.10) ***	1.72 (1.16-2.56) **	1.71 (1.17-2.51) ***	1.09 (0.71-1.67)	1.71 (1.41-2.07) ***
High	1.95 (0.85-4.45)	1.39 (0.87-2.21)	4.48 (2.66-7.53) ***	1.84 (1.08-3.15) *	2.43 (1.88-3.14) ***
Discuss sex related matters with mother					
No					
Yes	0.63 (0.45-0.90) *	0.96 (0.68-1.35)	0.45 (0.32-0.64) ***	0.87 (0.58-1.31)	0.70 (0.59-0.83) ***
Discuss sex related matters with father					
No					
Yes	0.62 (0.42-0.92) *	0.83 (0.56-1.24)	0.85 (0.55-1.32)	0.79 (0.41-1.51)	0.72 (0.58-0.90) ***
Gotten drunk in last 30 days					
No					
Yes	0.20 (0.13-0.32) ***	0.17 (0.12-0.25) ***	0.03 (0.01-0.07) ***	0.16 (0.10-0.24) ***	0.16 (0.13-0.20) ***
Self-efficacy					
Low					
High	2.43 (1.71-3.45) ***	7.21 (4.89-10.64) ***	7.03 (4.56-10.84) ***	6.13 (3.97-9.49) ***	4.60 (3.81-5.56) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2.1 Single Sexual Partnerships among Females

Demographic characteristics

The association between demographic characteristics and single sexual partnerships in tables 5a show that being aged 18-24 was significantly associated with lower odds of engaging in single sexual partnerships for the years 2003, 2008 and 2013. By place of residence, youth from rural areas were significantly less likely to engage in single sexual partnerships in 2013. By religion, Muslim youth had higher odds of engaging in SSP in 2008 and 201 but other Christians had lower odds of engaging in SSP compared to Catholics. The association between ethnicity and SSP revealed that female Hausa youth had significantly higher odds of having single sexual partners in all the three survey years.

Socio-economic characteristics

Being educated regardless of the level was significantly associated with lower odds of engaging in SSP for 2003, 2008 and 201 compared to youth with no education. This association was similar for youth who were working and youth from the rich quintile as youth who were working and youth from rich households also had lower odds of engaging in SSP compared to their counterparts who were not working and counterparts from poor households.

Other characteristics

Female youth living in households headed by females, who were exposed to mass media and had high knowledge of HIV had lower odds of engaging in SSP in 2003, 2008 and 2013 compared to their counterparts who were living in male households, not exposed to mass media and low knowledge of HIV.

Table 5.2a: Unadjusted association between characteristics and SSP among females

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.16 (0.14-0.18) ***	0.21 (0.18-0.24) ***	0.26 (0.20-0.33) ***
Place of residence			
Urban			
Rural	0.88 (0.80-0.97) *	0.97 (0.87-1.08)	1.16 (0.94-1.42)
Religion			
Catholic			
Other Christian	0.79 (0.69-0.90) ***	0.77 (0.66-0.89) ***	0.97 (0.72-1.30)
Muslim	3.72 (3.11-4.44) ***	2.12 (1.75-2.56) ***	0.81 (0.61-1.07)
Other	1.73 (0.95-3.15)	1.47 (0.82-2.64)	2.09 (1.51-2.89) ***
Ethnicity			
Yoruba			
Igbo	1.09 (0.94-1.28)	1.32 (1.11-1.55) ***	0.93 (0.68-1.26)
Hausa	21.74 (13.47-35.09) ***	10.09 (6.21-16.40) ***	14.22 (4.41-45.82) ***
Fulani	83.04 (11.60-94.24) ***	13.13 (4.13-41.73) ***	6.29 (0.82-47.82)
Ijaws	0.42 (0.34-0.52) ***	0.29 (0.23-0.36) ***	0.21 (0.09-0.49) ***
Others	0.92 (0.81-1.05)	0.99 (0.86-1.14)	0.74 (0.56-0.98) *
Region			
South West			
North Central	1.89 (1.60-2.22) ***	1.69 (1.43-2.01) ***	0.79 (0.56-1.10)
North East	2.47 (2.01-3.03) ***	1.85 (1.50-2.28) ***	1.77 (1.12-2.80)*
North West	6.90 (5.26-9.05) ***	7.11 (4.80-10.52) ***	4.70 (2.38-9.28)***
South East	1.32 (0.52-0.69) ***	1.54 (1.29-1.84) ***	0.92 (0.67-1.25)
South South	0.60 (0.52-0.69) ***	0.45 (0.38-0.52) ***	0.35 (0.25-0.48) ***
Educational attainment			
No education			
Primary	0.27 (0.19-0.38) ***	0.42 (0.28-0.62) ***	0.59 (0.33-1.06)
Secondary	0.20 (0.14-0.28) ***	0.25 (0.17-0.35) ***	0.37 (0.22-0.63) ***
Higher	0.08 (0.05-0.11) ***	0.09 (0.06-0.13) ***	0.20 (0.10-0.37) ***
Work status			
No			
Yes	0.46 (0.41-0.51) ***	0.49 (0.43-0.55) ***	0.54 (0.43-0.68) ***
Wealth status			
Poor			
Middle	0.60 (0.51-0.70) ***	0.81 (0.69-0.95) *	1.07 (0.78-1.46)
Rich	0.58 (0.51-0.67) ***	0.69 (0.61-0.79) ***	0.79 (0.62-1.02)
Sex household head			
Male			
Female	0.54 (0.49-0.60) ***	0.54 (0.48-0.60) ***	0.62 (0.49-0.77) ***
Exposure to mass media			
No			
Yes	0.53 (0.48-0.59) ***	0.48 (0.43-0.54) ***	0.46 (0.37-0.57) ***
HIV Knowledge			
No			
Yes	0.28 (0.20-0.39) ***	0.30 (0.20-0.44) ***	0.28 (0.08-0.95) *

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2.2 Single Sexual Partnerships among Males

Demographic characteristics

The association between demographic characteristics and single sexual partnerships among males in tables 5b show that being aged 18-24 was significantly associated with lower odds of engaging in single sexual partnerships for the years 2003, 2008 and 2013 compared to counterparts aged 15-17. By religion, Muslim youth had higher odds of engaging in SSP in all the three survey years compared to males who were Catholics. The association between ethnicity and SSP revealed that male Hausa and Fulani youth had significantly higher odds of having single sexual partners in all the three survey years compared to male Yoruba youth. Male youth from North West and North East had significantly higher odds of having single sexual partners in all the three years surveyed compared to male youth in the South West region.

Socio-economic characteristics

Educated males youth regardless of the level was significantly associated with lower odds of engaging in SSP for 2003, 2008 and 201 compared to youth with no education. Youth who were working in the years 2013 and youth from the rich quintile for survey years 2008 and 2013 also had significant lower odds of engaging in SSP for 2003, 2008 and 2013 compared to youth who were not working and youth from poor households.

Other characteristics

Male youth living in households headed by females, who were exposed to mass media and had high knowledge of HIV had lower odds of engaging in SSP in 2003, 2008 and 2013 compared to their counterparts living in households headed by males, not exposed to mass media and ow knowledge of HIV.

Table 5.2b: Unadjusted association SSP among males

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.10 (0.08-0.12) ***	0.20 (0.17-0.25)	0.14 (0.08-0.23) ***
Place of residence			
Urban			
Rural	1.09 (0.96-1.22)	1.06 (0.93-1.22)	1.04 (0.77-1.40)
Religion			
Catholic			
Other Christian	0.90 (0.76-1.07)	0.94 (0.77-1.14)	1.13 (0.76-1.67)
Muslim	4.55 (3.74-5.55) ***	3.43 (2.76-4.25) ***	2.61 (1.72-3.96) ***
Other	1.40 (0.74-2.64)	0.96 (0.53-1.74)	0.84 (0.18-3.89)
Ethnicity			
Yoruba			
Igbo	1.14 (0.92-1.40)	1.56 (1.24-1.96) ***	1.62 (1.00-2.62) *
Hausa	18.52 (12.73-26.95) ***	28.79 (17.84-46.46) ***	9.55 (4.84-18.85) ***
Fulani	9.13 (5.23-15.92) ***	4.86 (3.24-7.27) ***	6.23 (1.78-21.75) ***
Ijaws	0.56 (0.43-0.74) ***	0.59 (0.43-0.79) ***	1.62 (0.52-5.01)
Others	0.94 (0.79-1.11)	1.39 (1.16-1.66) ***	1.60 (1.06-2.41)
Region			
South West			
North Central	0.99 (0.82-1.21)	1.80 (1.47-2.21) ***	1.13 (0.71-1.78)
North East	2.61 (2.08-3.27) ***	3.27 (2.56-4.16) ***	2.93 (1.61-5.33) ***
North West	17.42 (12.17-24.94) ***	19.19 (12.95-28.41) ***	9.47 (4.84-18.52) ***
South East	1.20 (0.96-1.49)	1.75 (1.37-2.24) ***	1.50 (0.90-2.51)
South South	0.59 (0.49-0.71) ***	0.92 (0.75-1.12)	1.08 (0.67-1.76)
Educational attainment			
No education			
Primary	0.22 (0.15-0.32) ***	0.39 (0.27-0.57) ***	0.13 (0.03-0.44) ***
Secondary	0.14 (0.10-0.20) ***	0.18 (0.13-0.25) ***	0.08 (0.02-0.27) ***
Higher	0.05 (0.03-0.08) ***	0.07 (0.05-0.11) ***	0.05 (0.01-0.21) ***
Work status			
No			
Yes	0.44 (0.39-0.50) ***	0.92 (0.81-1.05)	0.73 (0.53-1.00)
Wealth status			
Poor			
Middle	0.39 (0.32-0.46) ***	0.76 (0.63-0.91) ***	1.42 (0.88-2.29)
Rich	0.34 (0.29-0.40) ***	0.57 (0.49-0.66) ***	0.75 (0.53-1.05)
Sex household head			
Male			
Female	0.68 (0.58-0.78) ***	0.80 (0.67-0.96) ***	0.69 (0.47-1.00)
Exposure to mass media			
No			
Yes	0.33 (0.29-0.37) ***	0.43 (0.38-0.50) ***	0.37 (0.27-0.51) ***
HIV Knowledge			
No			
Yes	0.11 (0.05-0.25) ***	0.36 (0.18-0.71) ***	0.38 (0.04-3.24)

5.2.3 HIV Testing among females

Demographic characteristics

The association between demographic characteristics and HIV testing among females in tables 6a show that being aged 18-24 was significantly associated with higher odds of HIV testing for the three survey years. Living in the rural area was associated with lower odds of HIV testing among females in 2008 and 2013. By religion, Muslim youth and youth who were other Christians had significantly lower odds testing for HIV for the years 2008 and 2013. Female Igbo youth had higher odds of testing for HIV compared to their Yoruba counterparts for the three survey years. However, Hausa and Fulani youth had lower odds of testing for HIV in 2013 compared to their Yoruba counterparts. Females from the South East region had higher odds of testing for HIV for the three survey years compared to their counterparts in the South West. However, females in the North West had lower odds of testing for HIV compared to their counterparts in the South West region.

Socio-economic characteristics

Female youth who were educated had higher odds of testing for HIV for the three survey years compared to counterparts with no education. Similarly, female youth who were working in the year 2013 were more likely to get tested for HIV compared to their counterparts who were not working and youth from the rich quintile had higher odds of HIV testing compared to counterparts from poor households for survey years 2008 and 2013.

Other characteristics

Female youth living in households headed by females had higher odds of testing for HIV compared to counterparts living with households headed by males in 2008 and 2013. Similarly, female youth who were exposed to mass media and

had high knowledge of HIV had higher odds of testing for HIV in 2003, 2008 and 2013 compared to their counterparts who were not exposed to mass media and had low HIV knowledge.

Table 5.3a: Unadjusted association HIV testing among females

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	5.68 (4.86-6.64) ***	4.89 (3.90-6.12) ***	8.70 (3.76-20.09) ***
Place of residence			
Urban			
Rural	0.71 (0.62-0.80) ***	0.54 (0.45-0.64) ***	0.69 (0.44-1.08)
Religion			
Catholic			
Other Christian	0.71 (0.61-0.83) ***	0.69 (0.56-0.85) ***	0.53 (0.29-0.98)
Muslim	0.22 (0.18-0.28) ***	0.22 (0.16-0.30) ***	0.75 (0.44-1.28)
Other	0.10 (0.02-0.41) ***	0.69 (0.31-1.55)	0.27 (0.12-0.59)***
Ethnicity			
Yoruba			
Igbo	1.75 (1.46-2.12) ***	1.93 (1.50-2.49) ***	2.30 (1.12-4.72) *
Hausa	0.09 (0.05-0.16) ***	0.20 (0.09-0.45) ***	0.25 (0.03-2.01)
Fulani	0.23 (0.10-0.50) ***	na	na
Ijaws	0.88 (0.64-1.20)	0.95 (0.61-1.47)	4.01 (1.02-15.70)
Others	1.25 (1.05-1.48) **	1.28 (1.01-1.63) *	1.47 (0.71-3.04)
Region			
South West			
North Central	1.08 (0.89-1.32)	0.99 (0.75-1.32)	1.25 (0.54-2.89)
North East	0.82 (0.65-1.05)	0.49 (0.32-0.75) ***	0.21 (0.02-1.71)
North West	0.29 (0.21-0.41) ***	0.56 (0.34-0.91) *	0.98 (0.08-1.80)
South East	1.53 (1.26-1.86) ***	1.83 (1.41-2.38) ***	2.70 (1.34-5.42) ***
South South	1.14 (0.94-1.38)	1.72 (1.34-2.21) ***	2.23 (1.07-4.66) *
Educational attainment			
No education			
Primary	6.27 (2.83-13.86) ***	4.67 (1.08-20.02)	1.31 (0.14-11.95)
Secondary	13.05 (6.17-27.60) ***	15.37 (3.81-61.95)	4.64 (0.63-33.93)
Higher	71.11 (33.26-152.03) ***	114.46 (28.22-464.24)	12.25 (1.59-93.95)*
Work status			
No			
Yes	1.98 (1.74-2.25) ***	1.20 (1.00-1.44)	1.55 (0.97-2.49)
Wealth status			
Poor			
Middle	1.69 (1.35-2.13) ***	2.11 (1.50-2.98) ***	0.93 (0.39-2.18)
Rich	2.67 (2.19-3.25) ***	4.33 (3.24-5.80) ***	2.03 (1.08-3.82)
Sex household head			
Male			
Female	1.82 (1.60-2.06) ***	1.40 (1.17-1.67) ***	1.09 (0.67-1.79)
Exposure to mass media			
No			
Yes	2.25 (1.99-2.55) ***	3.66 (3.06-4.38) ***	1.89 (1.20-2.97) **
HIV Knowledge			

No			
Yes	5.32 (3.05-9.27) ***	2.63 (1.39-4.97) ***	1.63 (0.21-12.13)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2.4 HIV Testing among males

Demographic characteristics

The association between demographic characteristics and HIV testing among males in tables 6b show that being aged 18-24 compared to counterparts aged 15-17 was significantly associated with higher odds of HIV testing for the three survey years. Living in the rural area compared to living in urban areas was associated with lower odds of HIV testing among males in the three survey years. By religion, Muslim youth and youth who were other Christians had significantly lower odds testing for HIV for the years 2008 and 2013 compared to youth who were Catholic. Hausa and Fulani youth had lower odds of testing for HIV in 2008 and 2013 compared to their Yoruba counterparts. Males from the North West had lower odds of testing for HIV compared to their counterparts in the South West region in 2008 and 2013.

Socio-economic characteristics

Male youth who had higher education and who were from rich households were more likely to test for HIV compared to counterparts with no education and who were from poor households for the three survey years.

Other characteristics

Male youth living in households headed by females had higher odds of testing for HIV compared to counterparts living with households headed by males in 2013. Similarly, male youth who were exposed to mass media had higher odds of testing for HIV in the three survey years compared to counterparts who were not exposed to mass media.

Table 5.3b: Unadjusted association HIV testing among males

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	4.95 (3.88-6.33) ***	3.41 (2.46-4.71) ***	3.38 (1.52-7.54) ***
Place of residence			
Urban			
Rural	0.58 (0.49-0.69) ***	0.58 (0.46-0.72) ***	0.55 (0.33-0.94) *
Religion			
Catholic			
Other Christian	0.80 (0.64-1.01)	0.64 (0.48-0.85) ***	0.67 (0.34-1.30)
Muslim	0.31 (0.24-0.41) ***	0.28 (0.20-0.40) ***	0.67 (0.35-1.28)
Other	0.42 (0.15-1.21)	1.12 (0.48-2.60)	na
Ethnicity			
Yoruba			
Igbo	1.31 (0.98-1.74)	1.16 (0.82-1.65)	2.16 (0.95-4.95)
Hausa	0.28 (0.19-0.40) ***	0.24 (0.14-0.41) ***	0.95 (0.37-2.42)
Fulani	0.41 (0.23-0.72) ***	0.24 (0.10-0.57) ***	1.18 (0.24-5.86)
Ijaws	0.39 (0.21-0.69) ***	0.91 (0.54-1.52)	1.05 (0.12-8.96)
Others	1.17 (0.91-1.49)	0.87 (0.64-1.17)	1.01 (0.45-2.26)
Region			
South West			
North Central	1.27 (0.96-1.68)	0.74 (0.53-1.04)	2.01 (0.87-4.64)
North East	1.09 (0.82-1.45)	0.26 (0.15-0.43) ***	1.46 (0.56-3.83)
North West	0.26 (0.18-0.37) ***	0.27 (0.17-0.45) ***	0.85 (0.33-2.22)
South East	1.32 (0.98-1.79)	1.24 (0.87-1.79)	1.65 (0.65-4.13)
South South	1.08 (0.82-1.43)	1.04 (0.75-1.44)	1.12 (0.41-3.00)
Educational attainment			
No education			
Primary	3.85 (1.81-8.18) ***	2.69 (0.99-7.28)	3.58 (0.43-29.22)
Secondary	9.06 (4.66-17.63) ***	6.06 (2.48-14.82) ***	5.05 (0.68-37.45)
Higher	56.92 (28.73-112.78) ***	32.13 (12.86-80.27) ***	29.40 (3.75-230.02) ***
Work status			
No			
Yes	1.65 (1.39-1.95) ***	1.01 (0.80-1.26)	1.06 (0.62-1.83)
Wealth status			
Poor			
Middle	1.86 (1.41-2.45) ***	1.86 (1.28-2.69) ***	1.31 (0.50-3.39)
Rich	2.99 (2.37-3.78) ***	2.91 (2.13-3.96) ***	3.01 (1.48-6.08) ***
Sex household head			
Male			
Female	1.32 (1.08-1.62) ***	1.01 (0.74-1.37)	0.63 (0.29-1.35)
Exposure to mass media			
No			
Yes	3.48 (2.91-4.16) ***	2.82 (2.17-3.67) ***	2.41 (1.34-4.34) ***
HIV Knowledge			
No			
Yes	10.73 (2.65-43.34) ***	3.63 (0.88-14.74)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2.5 Condom use at last sex among females

Demographic characteristics

Females aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 in 2008 and 2013. Living in the rural area, in comparison to living in urban area was associated with lower odds of condom use at last sex among females in the three survey years. By religion, Muslim youth and youth who were other Christians were less likely to use condom at last sex in 2008 and 2013 compared to their Catholic counterparts. Igbo female youth were more likely to use condoms at last sex compared to their Yoruba counterparts in 2003 and 2013 while Ijaw youth were less likely to use condoms at last sex compared to Yoruba counterparts in 2008 and 2013. Females in the other regions had lower odds of using condoms at last sex compared to their counterparts in the South West in 2003 but this association was only significant among females in North East and South South in 2013 and South South for all the three survey years. However, in 2013, females in the South East had significantly higher odds of using condoms at last sex compared to counterparts in the South West.

Socio-economic characteristics

Higher education and living in a rich household was significantly associated with condom use at last sex among females compared to counterparts with no education and living in a poor household in all the survey years.

Other characteristics

Females who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media.

Table 5.4a: Unadjusted condom use among females

Characteristics	2013	2008	2003
	CC use	CC use	CC use
Age			
15-17			
18-24	2.02 (1.61-2.54) ***	2.52 (1.93-3.30) ***	1.45 (0.88-2.41)
Place of residence			
Urban			
Rural	0.49 (0.41-0.58) ***	0.41 (0.34-0.50) ***	0.52 (0.35-0.77) ***
Religion			
Catholic			
Other Christian	0.69 (0.55-0.87) ***	0.66 (0.51-0.85) ***	1.30 (0.75-2.27)
Muslim	0.78 (0.56-1.07)	0.60 (0.42-0.86) ***	1.21 (0.72-2.05)
Other	0.51 (0.17-1.52)	0.80 (0.29-2.23)	1.53 (0.81-2.86)
Ethnicity			
Yoruba			
Igbo	1.38 (1.06-1.79) *	1.28 (0.96-1.70)	0.36 (0.21-0.63) ***
Hausa	0.31 (0.10-0.97)	1.38 (0.53-3.58)	0.50 (0.04-5.70)
Fulani	na	0.86 (0.07-9.64)	na
Ijaws	0.62 (0.5-0.86) ***	0.34 (0.22-0.50) ***	0.14 (0.03-0.66)
Others	0.63 (0.50-0.78) ***	0.75 (0.59-0.95) *	0.28 (0.16-0.46) ***
Region			
South West			
North Central	0.83 (0.62-1.10)	0.68 (0.50-0.92) *	0.39 (0.21-0.71) ***
North East	0.24 (0.15-0.38) ***	0.29 (0.18-0.47) ***	0.07 (0.01-0.32) ***
North West	0.84 (0.50-1.40)	0.49 (0.20-1.18)	0.65 (0.17-2.45)
South East	1.35 (1.03-1.77) *	1.07 (0.79-146)	0.29 (0.16-0.52) ***
South South	0.66 (0.53-0.82) ***	0.74 (0.58-0.95) *	0.26 (0.15-0.45) ***
Educational attainment			
No education			
Primary	6.39 (1.48-27.51) *	6.90 (0.91-52.39)	1.54 (0.31-7.62)
Secondary	14.65 (3.53-60.75) ***	17.44 (2.38-127.43) **	3.02 (0.68-13.38)
Higher	36.12 (8.59-151.77) ***	39.00 (5.28-287.70) ***	9.6 (2.01-45.81) **
Work status			
No			
Yes	0.97 (0.82-1.16)	1.07 (0.88-1.30)	0.79 (0.51-1.20)
Wealth status			
Poor			
Middle	2.07 (1.50-2.85) ***	1.82 (1.30-2.55) ***	0.97 (0.47-2.01)
Rich	3.79 (2.84-5.05) ***	3.59 (2.71-4.77) ***	2.70 (1.60-4.58) ***
Sex household head			
Male			
Female	0.93 (0.78-1.11)	1.07 (0.88-1.30)	1.24 (0.83-1.87)
Exposure to mass media			
No			
Yes	2.23 (1.88-2.64) ***	2.33 (1.92-2.83) ***	2.67 (1.76-4.06) ***
HIV Knowledge			
No			
Yes	1.85 (0.94-3.63)	0.75 (0.36-1.56)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.2.5 Condom use at last sex among males

Demographic characteristics

Males aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 in 2008 and 2013. Living in the rural area was associated with lower odds of condom use at last sex among males in the three survey years. By religion, Muslim youth were less likely to use condom at last sex in 2008 compared to their Catholic counterparts and youth who were other Christian were also less likely to use condom at last sex in 2013 compared to their Catholic counterparts. Fulani and Ijaw male youth had lower odds of using condoms at last sex compared to Yoruba youth in 2008 and 2013. By region, males in North Central had lower odds of using condoms in 2008 compared to males in South West but higher odds of using condoms at last sex in 2013.

Socio-economic characteristics

Higher education and living in a rich household was significantly associated with condom use at last sex among males compared to counterparts with no education and youth living in a poor household in 2008 and 2013.

Other characteristics

Males who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media.

Table 5.4b: Unadjusted condom use among males

Characteristics	2013	2008	2003
	Ccuse	Ccuse	Ccuse
Age			
15-17			
18-24	1.60 (1.11-2.30) ***	2.49 (1.74-3.56) ***	1.98 (0.78-5.04)
Place of residence			
Urban			
Rural	0.47 (0.38-0.58) ***	0.41 (0.32-0.52) ***	0.36 (0.22-0.60) ***
Religion			
Catholic			
Other Christian	0.71 (053-0.95) *	0.91 (0.67-1.24)	1.46 (0.79-2.71)
Muslim	0.74 (0.52-1.05)	0.61 (0.42-0.88) ***	1.33 (0.68-2.59)
Other	0.28 (0.09-0.86) *	0.34 (0.12-0.99)	na
Region			
Yoruba			
Igbo	0.96 (0.67-1.39)	1.27 (0.86-1.86)	0.54 (0.25-1.16)
Hausa	0.76 (0.37-1.55)	0.60 (0.25-1.41)	0.11 (0.02-0.45)
Fulani	0.18 (0.05-0.58) ***	0.04 (0.01-0.19) ***	0.69 (0.10-4.50)
Ijaws	0.32 (0.20-0.49) ***	0.25 (0.16-0.40) ***	0.23 (0.03-1.37)
Others	0.69 (0.51-0.92) *	0.43 (0.32-0.57) ***	0.25 (0.13-0.49) ***
Region			
South West			
North Central	1.49 (1.06-2.09) *	0.42 (0.30-0.59) ***	0.46 (0.23-0.95)
North East	0.33 (0.22-0.51) ***	0.18 (0.11-0.29) ***	0.21 (0.08-0.55) ***
North West	0.41 (0.21-0.83) *	0.37 (0.17-0.82) *	0.29 (0.07-1.07)
South East	1.00 (0.68-1.45)	1.15 (0.76-1.73)	0.65 (0.28-1.46)
South South	0.80 (0.60-1.07)	0.49 (0.36-0.66) ***	0.38 (0.18-0.81) *
Educational attainment			
No education			
Primary	1.91 (0.86-4.23)	3.25 (1.07-9.90) *	na
Secondary	3.91 (1.90-8.07) ***	8.61 (3.05-24.27) ***	na
Higher	11.97 (5.45-26.28) ***	26.59 (8.98-78.66) ***	na
Work status			
No			
Yes	0.92 (0.74-1.14)	0.76 (0.61-0.96) *	0.61 (0.37-1.02)
Wealth status			
Poor			
Middle	1.59 (1.15-2.20) **	2.03 (1.44-2.87) ***	2.25 (0.97-5.20)
Rich	2.84 (2.12-3.80) ***	3.90 (2.92-5.20) ***	4.42 (2.41-8.09) ***
Sex household head			
Male			
Female	1.14 (0.89-1.46)	1.13 (0.84-1.52)	0.83 (0.46-1.49)
Exposure to mass media			
No			
Yes	1.76 (1.42-2.18) ***	2.01 (1.58-2.56) ***	2.17 (1.24-3.81) ***
HIV Knowledge			
No			
Yes	1.31 90.32-5.28)	2.03 (0.52-7.88)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3 Multivariate Associations

In the following section, we examine the net association between characteristics and protective sexual behaviours

5.3.1 Adjusted association between characteristics and abstinence among females

Demographic characteristics

Age remained significantly associated with primary abstinence among females for the three survey years. Females aged 18-24 in 2003 (RRR- 0.26; CI – 0.17-0.38), 2008 (RRR- 0.22; CI – 0.18-0.27) and 2013 (RRR- 0.15; CI – 0.13-0.18) were less likely to abstain from sex. Females from rural areas also had lower odds of abstaining in 2008 (RRR- 0.79; CI – 0.65-0.9) and 2013 (RRR- 0.78; CI – 0.66-0.84). Females who were Muslims (RRR- 1.58; CI – 1.14-2.19) had higher odds of being primary abstainers in 2013 compared to females who were Catholics. By ethnicity, females who belonged to the Hausa ethnic group had higher odds of being primary abstainers in 2003 (RRR- 5.59; CI – 1.02-30.62), 2008 (RRR- 12.41; CI – 6.06-25.39) and 2013 (RRR- 10.14; CI – 4.64-22.12). Female Ijaw youth had lower odds of being primary abstainers compared to their Yoruba counterparts but this association was only significant in 2008 (RRR- 0.22; CI – 0.16-0.29) and 2013 (RRR- 0.52; CI – 0.34-0.78). By region, females from the North Central and North East region had higher odds of being primary abstainers in the years 2008 and 2013 compared to their counterparts in the South West region.

Socio-economic characteristics

Higher education in comparison with no education was significantly associated with lower odds of primary abstinence among females in 2008 (RRR- 0.35; CI – 0.19-0.62) and 2013 (RRR- 0.33; CI – 0.18-0.59). Females who were working were less likely to be primary abstainers in 2003 (RRR- 0.46; CI – 0.32-0.68), 2008 (RRR- 0.48; CI – 0.40-0.57) and 2013 (RRR- 0.47; CI – 0.40-0.55) compared to their counterparts who were not working.

Other characteristics

Females who were living in households headed by females had lower odds of being primary abstainers in 2008 (RRR- 0.71; CI – 0.59-0.84) and 2013 (RRR- 0.78; CI – 0.66-0.91) compared to their counterparts living in male headed households. Females who were exposed to mass media had lower odds of being primary abstainers in 2003 (RRR- 0.80; CI – 0.68-0.94), 2008 (RRR- 0.60; CI – 0.50-0.72) and 2013 (RRR- 0.43; CI – 0.31-0.61).

Table 5.5a: Adjusted association between individual, household characteristics and abstinence among females

Characteristics	2013		2008		2003	
	Primary vs active	Recent vs active	Primary vs active	Recent vs active	Primary vs active	Recent vs active
Age						
15-17						
18-24	0.15 (0.13-0.18) ***	0.93 (0.76-1.15)	0.22 (0.18-0.27) ***	1.11 (0.89-1.37)	0.26 (0.17-0.38) ***	0.91 (0.58-1.42)
Place of residence						
Urban						
Rural	0.78 (0.66-0.84) *	1.02 (0.85-1.23)	0.79 (0.65-0.96) *	1.11 (0.90-1.36)	1.38 (0.93-2.04)	1.06 (0.70-1.61)
Religion						
Catholic						
Other Christian	0.96 (0.76-1.20)	0.93 (0.73-1.18)	0.69 (0.54-0.89) **	0.67 (0.51-0.86) **	1.48 (0.90-2.44)	1.84 (1.09-3.11) *
Muslim	1.58 (1.14-2.19) **	0.97 (0.69-1.37)	1.17 (0.84-1.64)	0.67 (0.47-0.97) *	1.51 (0.93-2.44)	1.68 (1.01-2.80) *
Other	1.82 (0.67-4.96)	1.41 (0.48-4.09)	0.58 (0.26-1.30)	0.54 (0.23-1.31)	1.04 (0.55-1.97)	0.94 (0.47-1.90)
Ethnicity						
Yoruba						
Igbo	1.30 (0.83-2.05)	1.40 (0.98-2.01)	1.87 (1.46-2.39) ***	2.17 (1.65-2.85) ***	1.97 (0.76-5.08)	1.76 (0.66-4.71)
Hausa	10.14 (4.64-22.12) ***	0.89 (0.56-1.40)	12.41 (6.06-25.39) ***	0.93 (0.37-2.36)	5.59 (1.02-30.62) *	0.59 (0.06-5.46)
Fulani	15.18 (2.03-113.30) **	0.55 (0.31-0.97)	21.20 (2.93-153.11)	2.72 (0.30-24.54)	1.38 (0.14-13.31)	1.88
Ijaws	0.52 (0.34-0.78) ***	1.04 (0.63-1.72)	0.22 (0.16-0.29) ***	0.49 (0.36-0.67) ***	0.85 (0.21-3.40)	1.66 (0.44-6.26)
Others	0.91 (0.66-1.26)	0.51 (0.36-0.71) ***	1.06 (0.88-1.28)	1.12 (0.91-1.39)	0.77 (0.38-1.57)	0.82 (0.39-1.73)
Region						
South West						
North Central	2.64 (1.92-3.35) ***	1.64 (1.22-2.19)	1.80 (1.38-2.33) ***	1.24 (0.93-1.65)	0.77 (0.37-1.58)	0.91 (0.43-1.95)
North East	1.84 (1.20-2.82)	1.08 (0.74-1.57)	2.01 (1.43-2.83) ***	1.37 (0.94-2.00)	0.84 (0.35-2.03)	0.47 (0.17-1.26)
North West	1.04 (0.63-1.73)	0.67 (0.41-1.09)	5.36 (3.02-9.52) ***	0.90 (0.44-1.86)	1.24 (0.37-4.11)	0.78 (0.20-2.93)
South East	1.48 (0.92-2.40)	1.44 (1.08-1.92) *	3.07 (2.32-4.22) ***	2.63 (1.88-3.67) ***	0.48 (0.18-1.28)	0.50 (0.18-1.39)
South South	0.57 (0.41-0.79) ***	0.57 (0.45-0.71) ***	0.41 (0.33-0.52) ***	0.74 (0.58-0.94) *	0.16 (0.09-0.33)	0.35 (0.20-0.60) ***
No education						
Primary	0.62 (0.35-1.10)	1.11 (0.58-2.13)	0.82 (0.47-1.43)	1.44 (0.75-2.78)	1.22 (0.52-2.87)	2.23 (0.76-6.62)
Secondary	0.56 (0.33-0.96) *	0.89 (0.48-1.63)	0.64 (0.38-1.06)	1.37 (0.74-2.54)	0.98 (0.43-2.20)	2.20 (0.78-6.17)
Higher	0.33 (0.18-0.59) ***	0.79 (0.41-1.52)	0.35 (0.19-0.62) ***	1.37 (0.70-2.66)	1.02 (0.37-2.80)	3.81 (1.17-12.39) *
Work status						
No						

Yes	0.47 (0.40-0.55) ***	0.82 (0.69-0.96) *	0.48 (0.40-0.57) ***	0.82 (0.68-0.98) *	0.46 (0.32-0.68)***	0.79 (0.53-1.17)
Wealth status						
Poor						
Middle	0.93 (0.72-1.21)	0.94 (0.71-1.24)	1.12 (0.87-1.44)	1.05 (0.81-1.38)	1.20 (0.73-1.99)	0.87 (0.50-1.50)
Rich	1.10 (0.85-1.43)	0.96 (0.73-1.25)	1.19 (0.93-1.53)	1.07 (0.83-1.39)	1.05 (0.66-1.67)	1.00 (0.60-1.64)
Sex household head						
Male						
Female	0.78 (0.66-0.91) ***	1.09 (0.92-1.29)	0.71 (0.59-0.84) ***	1.02 (0.85-1.22)	0.71 (0.50-1.01)	0.96 (0.67-1.39)
Exposure to mass media						
No						
Yes	0.80 (0.68-0.94) ***	0.96 (0.81-1.14)	0.60 (0.50-0.72) ***	0.76 (0.63-0.92) ***	0.43 (0.31-0.61) ***	0.55 (0.38-0.79) ***
HIV Knowledge						
No						
Yes	0.54 (0.32-0.90) *	0.80 (0.45-1.42)	0.41 (0.22-0.75) **	1.10 (0.55-2.19)	0.27 (0.03-2.20)	0.66 (0.06-6.59)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.2 Adjusted association between characteristics and abstinence among males

Demographic characteristics

Males aged 18-24 in 2003 (RRR- 0.09; CI – 0.04-0.21), 2008 (RRR- 0.17; CI – 0.13-0.23) and 2013 (RRR- 0.06; CI – 0.04-0.09) were less likely to abstain from sex compared to their counterparts aged 15-17. Males from rural areas also had lower odds of abstaining in 2013 (RRR- 0.77; CI – 0.60-0.98) compared to their counterparts from urban areas. Muslim males (RRR- 1.61; CI – 1.09-2.36) had higher odds of being primary abstainers in 2013 compared to males who were Catholics. By ethnicity, males who belonged to the Hausa and Fulani ethnic group had higher odds of being primary abstainers in 2003 and 2008 compared to their Yoruba counterparts. On the other hand, male Ijaw youth had lower odds of being primary abstainers compared to their Yoruba counterparts in 2008 (RRR- 0.40; CI – 0.21-0.73) and 2013 (RRR- 0.41; CI – 0.23-0.72). By region, males from the North West region had higher odds of being primary abstainers in the years 2003 (RRR- 6.34; CI – 1.46-27.48), 2008 (RRR- 10.44; CI – 4.23-25.73) and 2013 (RRR- 3.47; CI – 1.72-6.97) compared to their counterparts in the South West region. Male youth in the South South had lower odds of being primary abstainers compared to their counterparts in the South West but this association was only significant in 2013 (RRR- 0.54; CI – 0.35-0.84).

Socio-economic characteristics

Higher education in comparison to no education was significantly associated with lower odds of primary abstinence among males in 2008 (RRR- 0.18; CI – 0.09-0.35) and 2013 (RRR- 0.13; CI – 0.06-0.29). Males who were working were less likely to be primary abstainers in 2003 (RRR- 0.29; CI – 0.16-0.51), 2008 (RRR- 0.43; CI – 0.34-0.55) and 2013 (RRR- 0.33; CI – 0.27-0.41) compared to their counterparts who were not working.

Other characteristics

Males who were exposed to mass media had lower odds of being primary abstainers in 2003 (RRR- 0.32; CI – 0.19-0.53), 2008 (RRR- 0.57; CI – 0.45-0.72) and 2013 (RRR- 0.53; CI – 0.01-0.42) compared to counterparts not exposed to mass media. Knowledge of HIV was significantly associated with lower odds of primary abstinence in 2013 (RRR- 0.05; CI – 0.01-0.42) compared to counterparts with low HIV knowledge.

5.3.3 Adjusted association between individual characteristics and abstinence among youth in selected states

The results in table 5.5c show the adjusted association between individual characteristics and abstinence among youth in selected states. By demographic characteristics, males (OR – 1.38; CI – 1.09-1.75) had significantly higher odds of being abstainers compared to their female counterparts. Youth aged 18-24 (OR – 0.19; CI – 0.12-0.29) were less likely to abstain compared to counterparts aged 15-17. Muslim youth in Osun state (OR – 16.29; CI – 1.51-75.23) has higher odds of abstaining compared to Catholic counterparts. Youth who reported that religion was very important (OR – 1.30; CI – 1.02-1.66) to them had higher odds of abstaining compared to youth who said religion was not important to them. Youth who had attained higher education (OR – 2.15; CI – 1.04-4.42) also had higher odds of abstaining compared to their counterparts who had no education. Conversely, youth who were working for pay (OR – 0.66; CI – 0.51-0.83) had significantly lower odds of being primary abstainers compared to their counterparts who were not working.

By family characteristics, youth living with neither parent (OR – 0.29; CI – 0.20-0.42), mother alone (OR – 0.35; CI – 0.22-0.57) or father alone (OR – 0.54; CI – 0.37-0.79) had lower odds of abstaining compared to youth living with both parents. High parental monitoring (OR – 2.59; CI – 1.86-3.58) and high self-efficacy (OR – 4.17; CI – 3.30-5.26) was associated with increased odds of primary abstinence. Discussing sex related matters with mother (OR – 0.56; CI

– 0.44-0.74) and getting drunk in the last 30 days (OR – 0.25; CI – 0.19-0.33) was associated with reduced odds of primary abstinence.

Table 5.5b: Adjusted association between individual, household characteristics and abstinence among males

Characteristics	2013		2008		2003	
	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active	Primary vs Active	Recent vs Active
Age						
15-17						
18-24	0.06 (0.04-0.09) ***	0.53 (0.36-0.79) ***	0.17 (0.13-0.23) ***	0.79 (0.57-1.10)	0.09 (0.04-0.21) ***	0.37 (0.16-0.88) *
Place of residence						
Urban						
Rural	0.77 (0.60-0.98) ***	0.88 (0.69-1.12)	0.83 (0.64-1.08)	1.02 (0.78-1.33)	0.76 (0.42-1.38)	0.82 (0.45-1.49)
Religion						
Catholic						
Other Christian	1.12 (0.82-1.53)	1.12 (0.83-1.53)	1.24 (0.90-1.71)	1.15 (0.83-1.59)	1.83 (0.097-3.44)	1.38 (0.73-2.60)
Muslim	1.61 (1.09-2.36) *	1.00 (0.68-1.48)	1.81 (1.21-2.70)	0.98 (0.65-1.49)	1.48 (0.65-1.36)	0.82 (0.35-1.91)
Other	0.71 (0.27-1.86)	0.69 (0.27-1.77)	1.58 (0.61-4.10)	1.36 (0.52-3.51)	1.33 (0.09-19.33)	2.25 (0.19-26.48)
Ethnicity						
Yoruba						
Igbo	1.81 (0.98-3.31)	1.02 (0.55-1.87)	1.91 (0.98-3.71)	1.66 (0.85-3.23)	1.60 (0.45-5.64)	0.85 (0.24-2.89)
Hausa	5.47 (2.59 -11.54) ***	1.43 (0.63-3.25)	5.66 (2.36-13.53) ***	1.73 (0.67-4.43)	4.28 (0.97-18.80)	3.18 (0.70-14.32)
Fulani	7.23 (2.07-25.25) ***	3.86 (1.06-14.06)	2.76 (1.12-6.80) *	2.13 (0.82-5.50)	0.90 (0.17-4.74)	0.70 (0.11-4.23)
Ijaws	0.41 (0.23-0.72) ***	0.60 (0.35-1.04)	0.40 (0.21-0.73) ***	0.55 (0.30-1.01)	7.34 (0.65-82.10)	5.94 (0.56-62.05)
Others	0.96 (0.63-1.48)	0.84 (0.55-1.29)	0.92 (0.58-1.45)	0.90 (0.57-1.44)	1.27 (0.50-3.20)	0.74 (0.29-1.83)
Region						
South West						
North Central	0.86 (0.56-1.31)	0.83 (0.54-1.26)	1.63 (1.04-2.55) ***	0.94 (0.60-1.49)	0.52 (0.21-1.26)	0.49 (0.21-1.18)
North East	1.74 (1.05-2.89) *	1.09 (0.65-1.83)	2.18 (1.26-3.78) ***	1.08 (0.61-1.91)	0.86 (0.28-2.66)	0.68 (0.21-2.15)
North West	3.47 (1.72-6.97) ***	0.67 (0.41-1.09)	10.44 (4.23-25.73) ***	1.79 (0.68-4.70)	6.34 (1.46-27.48) *	0.98 (0.20-4.72)
South East	0.85 (0.45-1.62)	1.87 (0.99-3.54)	1.57 (0.76-3.22)	1.14 (0.55-2.36)	0.97 (0.25-3.75)	1.46 (0.39-5.43)
South South	0.54 (0.35-0.84) ***	0.90 (0.59-1.37)	0.90 (0.55-1.46)	0.79 (0.48-1.29)	0.33 (0.12-0.87)	0.42 (0.16-1.10)
Educational attainment						
No education						
Primary	0.32 (0.15-0.66) ***	0.44 (0.20-0.96)	0.70 (0.36-1.33)	0.95 (0.47-1.91)	0.20 (0.04-1.02)	0.40 (0.07-2.26)
Secondary	0.32 (0.16-0.63) ***	0.48 (0.23-0.99)	0.50 (0.27-0.90) *	0.89 (0.47-1.69)	0.12 (0.02-0.62) ***	0.27 (0.04-1.49)
Higher	0.13 (0.06-0.29) ***	0.45 (0.21-0.99)	0.18 (0.09-0.35) ***	0.63 (0.30-.30)	0.08 (0.01-0.51)	0.30 (0.04-2.06)
Work status						
No						

Yes	0.33 (0.27-0.41) ***	0.74 (0.60-0.92) **	0.43 (0.34-0.55) ***	0.82 (0.68-0.98) *	0.29 (0.16-0.51) ***	0.76 (0.44-1.32)
Wealth status						
Poor						
Middle	0.96 (0.72-1.21)	1.06 (0.77-1.46)	1.13 (0.82-1.55)	1.18 (0.85-1.64)	1.53 (0.77-3.06)	1.47 (0.71-3.02)
Rich	1.19 (0.85-1.43)	1.31 (0.94-1.83)	0.93 (0.68-1.27)	0.95 (0.69-1.31)	1.61 (0.84-3.10)	2.03 (1.04-3.96) *
Sex household head						
Male						
Female	1.14 (0.88-1.48)	1.22 (0.94-1.57)	1.22 (0.91-1.63)	1.00 (0.74-1.35)	0.64 (0.35-1.17)	0.81 (0.44-1.46)
Exposure to mass media						
No						
Yes	0.53 (0.43-0.66) ***	0.89 (0.71-1.10)	0.57 (0.45-0.72) ***	0.95 (0.75-1.21)	0.32 (0.19-0.53) ***	0.58 (0.34-0.97)
HIV Knowledge						
No						
Yes	0.05 (0.01-0.42) ***	0.18 (0.02-1.42)	0.50 (0.14-1.79)	0.60 (0.16-2.22)	na	0.66 (0.06-6.59)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

Table 5.5c: Adjusted association between Individual, Family Characteristics and Abstinence among youth in selected states

Characteristics	Edo	Enugu	Kano	Osun	Total
Sex					
Female					
Male	1.97 (1.12-3.43) *	1.01 (0.64-1.59)	1.90 (1.05-3.44) **	1.49 (0.87-2.58)	1.38 (1.09-1.75) ***
Age					
15-17					
18-24	0.04 (0.01-0.11) ***	0.32 (0.13-0.78) *	0.37 (0.13-1.04)	0.38 (0.14-1.01)	0.19 (0.12-0.29) ***
Place of residence					
Urban					
Sub-urban	0.30 (0.14-0.62) ***	0.63 (0.34-1.16)	1.82 (0.92-3.60)	0.83 (0.44-1.55)	0.78 (0.60-1.03)
Rural	0.54 (0.23-1.26)	0.44 (0.24-0.79) ***	0.56 (0.27-1.14)	0.52 (0.29-0.92) *	0.71 (0.53-0.95)
Religion					
Catholic					
Other Christian	0.54 (0.28-1.01)	1.21 (0.58-2.51)	0.38 (0.05-2.55)	8.47 (1.53-46.95) *	0.89 (0.60-1.32)
Muslim	1.15 (023-5.80)	1.53 (0.06-36.68)	0.24 (0.04-1.24)	16.29 (1.51-175.32) *	0.45 (0.23-0.88) *
Other	0.64 (0.11-3.58)	2.88 (0.31-26.58)	na	4.94 (0.21-112.30)	0.84 (0.28-2.46)
Importance of religion					
Important					
Not important	1.04 (0.42-2.55)	0.53 (0.09-2.97)	0.19 (0.01-4.02)	0.67 (0.12-3.54)	0.91 (0.49-1.69)
Very important	1.02 (0.58-1.77)	1.28 (0.80-2.03)	1.83 (0.94-3.54)	1.47 (0.82-2.63)	1.30 (1.02-1.66) *
Religion_Head household					
Catholic					
Other Christian	0.54 (0.28-1.04)	0.65 (0.31-1.35)	3.28 (0.57-18.73)	0.21 (0.04-1.05)	0.79 (0.53-1.16)
Muslim	1.73 (0.40-7.33)	0.59 (0.03-9.84)	13.05 (3.13-54.37)	0.07 (0.01-0.78) *	2.53 (1.29-4.97) **
Other	1.43 (0.23-8.76)	0.21 (0.01-3.73)	na	0.27 (0.00-19.03)	0.81 (0.26-2.50)
Educational attainment					
No education					
Primary	1.73 (0.55-5.41)	1.94 (0.17-21.77)	0.03 (0.00-0.50) **	na	1.34 (0.62-2.89)
Secondary	3.68 (1.33-10.16)	6.60 (0.74-58.50)	0.20 (0.01-2.76)	na	3.21 (1.59-6.46) ***
Higher	1.57 (0.55-4.50)	4.71 (0.51-42.96)	0.09 (0.01-1.37)	0.49 (0.30-0.82) ***	2.15 (1.04-4.42) **
Ever work for pay					
No					
Yes	1.21 (0.68-2.16)	0.46 (0.28-0.74) ***	0.66 (0.36-1.21)	0.50 (0.29-0.84) ***	0.66 (0.51-0.83) ***
Father alive					
No					

Yes	0.80 (0.30-2.10)	1.18 (0.57-2.4)	0.57 (0.27-1.17)	0.72 (0.27-1.95)	0.77 (0.53-1.11)
Mother alive					
No					
Yes	0.63 (0.25-1.56)	0.66 (0.23-1.82)	0.46 (0.18-1.12)	1.42 (0.35-5.69)	0.67 (0.44-1.02)
Family structure					
Living with both parents					
Mother alone	1.33 (0.47-3.75)	0.83 (0.40-1.72)	0.20 (0.09-0.48) ***	0.45 (0.19-1.05)	0.54 (0.37-0.79) ***
Father alone	0.32 (0.11-0.85) *	0.32 (0.09-1.05)	0.23 (0.08-0.66) ***	1.20 (0.25-5.67)	0.35 (0.22-0.57) ***
Neither parent	0.70 (0.24-1.99)	0.43 (0.21-0.87) *	0.07 (0.03-0.15) ***	0.49 (0.16-1.47)	0.29 (0.20-0.42) ***
Parental monitoring					
Low					
medium	1.64 (0.97-2.75)	1.59 (0.94-2.68)	1.45 (0.81-2.60)	1.37 (0.78-2.43)	1.68 (1.31-2.14) ***
High	2.95 (0.89-9.74)	1.36 (0.73-2.52)	4.60 (2.07-10.22)	2.41 (1.18-4.94) *	2.59 (1.86-3.58) ***
Discuss sex related matters with mother					
No					
Yes	0.67 (0.39-1.15)	0.57 (0.35-0.94) *	0.56 (0.32-0.98) *	0.75 (0.41-1.36)	0.56 (0.44-0.71) ***
Discuss sex related matters with father					
No					
Yes	0.74 (0.41-1.35)	0.91 (0.53-1.57)	0.95 (0.48-1.90)	1.12 (0.48-2.60)	0.99 (0.74-1.33)
Gotten drunk in last 30 days					
No					
Yes	0.21 (0.11-0.41) ***	0.32 (0.20-0.51) ***	0.09 (0.03-0.25) ***	0.30 (0.17-0.54) ***	0.25 (0.19-0.33) ***
Self-efficacy					
Low					
High	4.02 (2.34-6.92) ***	5.00 (3.15-7.92) ***	4.65 (2.52-8.57)	3.42 (1.97-5.93) ***	4.17 (3.30-5.26) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.4 Adjusted association between characteristics and SSP among females

Demographic characteristics

The adjusted association between individual characteristics and SSP is presented in tables 5.6a. Females aged 18-24 had significantly lower odds of having SSP in 2003 (OR – 0.33; CI – 0.27-0.46), 2008 (OR – 0.26; CI – 0.23-0.30) and 2013 (OR – 0.19; CI – 0.16-0.46) compared to their counterparts aged 15-17. By place of residence, youth in rural areas compared with youth in urban arears had higher odds of engaging in SSP in 2003 (OR – 1.33; CI – 1.01-1.76) while opposite associations were evident in 2008 (OR – 0.79; CI – 0.68-0.91) and 2013 (OR – 0.71; CI – 0.63-0.82). Muslim youth (OR – 2.27; CI – 1.81-2.84) were about two times likely to engage in SSP compared to counterparts who were Catholics in 2013. By ethnicity, being Hausa was significantly associated with higher odds of SSP in 2003 (OR – 7.52; CI – 2.01-28.10), 2008 (OR – 2.59; CI – 1.42-4.71) and 2013 (OR – 9.21; CI – 5.02-16.90) compared to Yoruba youth. Similar associations were evident for Fulani youth (OR – 6.65; CI – 3.64-19.03) for year 2013 while Ijaw females were less likely to engage in SSP in 2008 (OR – 0.47; CI – 0.33-0.68) and 2013 (OR – 0.48; CI – 0.35-0.67) compared to Yoruba youth.

Socio-economic characteristics

Females with higher education in 2008 (OR – 0.28; CI – 0.18-0.44) and 2013 (OR – 0.41; CI – 0.27-0.62) had significantly lower odds of engaging in SSP compared to youth with no education. Youth who were working in the years 2003 (OR – 0.55; CI – 0.42-0.73), 2008 (OR – 0.55; CI – 0.48-0.63) and 2013 (OR – 0.55; CI – 0.49-0.63) also had lower odds of engaging in SSP compared to youth who were not working.

Other characteristics

Females who were living in households headed by females had lower odds of engaging in SSP in 2003 (OR – 0.71; CI – 0.55-0.91), 2008 (OR – 0.70; CI – 0.61-0.80) and 2013 (OR – 0.79; CI – 0.70-0.89) compared to their counterparts living in male households. Females with HIV knowledge had lower odds of engaging in SSP in 2008 (OR – 0.44; CI – 0.29-0.67) and 2013 (OR – 0.52; CI – 0.36-0.75) compared to their counterparts with low HIV knowledge.

Table 5.6a: Adjusted association between characteristics and SSP among females

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.19 (0.16-0.21) ***	0.26 (0.23-0.30) ***	0.33 (0.27-0.46) ***
Place of residence			
Urban			
Rural	0.71 (0.63-0.82) ***	0.79 (0.68-0.91) ***	1.33 (1.01-1.76) *
Religion			
Catholic			
Other Christian	0.97 (0.82-1.14)	0.87 (0.73-1.04)	0.96 (0.68-1.35)
Muslim	2.27 (1.81-2.84) ***	1.22 (0.96-1.55)	1.08 (0.77-1.53)
Other	1.41 (0.72-2.75)	1.17 (0.60-2.28)	1.00 (0.63-1.58)
Ethnicity			
Yoruba			
Igbo	1.06 (0.76-1.48)	1.32 (0.95-1.84)	1.39 (0.75-2.76)
Hausa	9.21 (5.02-16.90) ***	2.59 (1.42-4.71) ***	7.52 (2.01-28.10) ***
Fulani	26.65 (3.64-195.03) ***	4.11 (1.23-13.70)	2.74 (0.32-23.28)
Ijaws	0.48 (0.35-0.67) ***	0.47 (0.33-0.68) ***	0.59 (0.22-1.59)
Others	0.75 (0.59-0.95) *	0.92 (0.071-1.19)	1.04 (0.65-1.66)
Region			
South West			
North Central	2.01 (1.66-2.43) ***	1.61 (1.32-1.95) ***	0.65 (0.41-1.04)
North East	1.95 (1.52-2.49) ***	1.46 (1.14-1.84) ***	1.04 (0.56-1.93)
North West	3.28 (2.42-4.46) ***	3.39 (2.07-5.55) ***	1.58 (0.68-3.64)
South East	1.92 (1.58-2.34) ***	1.75 (1.42-2.17)	0.65 (0.5-1.22)
South South	0.70 (0.59-0.83) ***	0.54 (0.38-0.55) ***	0.26 (0.16-0.42) ***
Educational attainment			
No education			
Primary	0.67 (0.45-1.01)	0.69 (0.46-1.06)	1.07 (0.55-2.08)
Secondary	0.63 (0.43-0.92) *	0.52 (0.35-0.78) ***	0.82 (0.43-1.56)
Higher	0.41 (0.27-0.62) ***	0.28 (0.18-0.44) ***	0.58 (0.27-1.24)
Work status			
No			
Yes	0.55 (0.49-0.63) ***	0.55 (0.48-0.63) ***	0.55 (0.42-0.73) ***
Wealth status			
Poor			
Middle	0.92 (0.76-1.11)	1.01 (0.83-1.22)	1.22 (0.86-1.74)
Rich	1.03 (0.85-1.24)	1.01 (0.84-1.22)	1.13 (0.82-1.57)
Sex household head			
Male			
Female	0.79 (0.70-0.89) ***	0.70 (0.61-0.80) ***	0.71 (0.55-0.91) ***

Exposure to mass media			
No			
Yes	0.83 (0.73-0.94) ***	0.74 (0.64-0.84) ***	0.58 (0.46-0.74) ***
HIV Knowledge			
No			
Yes	0.52 (0.36-0.75) ***	0.44 (0.29-0.67) ***	0.37 (0.10-1.34)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.5 Adjusted association between characteristics and SSP among males

Demographic characteristics

The adjusted association between individual characteristics and SSP is presented in tables 5.6b. Males aged 18-24 had significantly lower odds of having SSP in 2003 (OR – 0.15; CI – 0.09-0.26), 2008 (OR – 0.22; CI – 0.18-0.26) and 2013 (OR – 0.12; CI – 0.09-0.14) compared to their counterparts aged 15-17. By place of residence, male youth in rural areas had lower odds of engaging in SSP in 2013 (OR – 0.81; CI – 0.68-0.96) compared to their counterparts in urban areas. Males who were other Christians had higher odds of engaging in SSP compared to their Catholic counterparts but this association was only significant in 2003 (OR – 1.70; CI – 1.03-2.81). Muslim males also had higher odds of engaging in SSP compared to their Catholic counterparts and association was significant in 2008 (OR – 1.74; CI – 1.30-2.32) and 2013 (OR – 2.24; CI – 1.69-2.98).

By ethnicity, being Hausa was significantly associated with higher odds of SSP in 2003 (OR – 3.19; CI – 1.11-9.16), 2008 (OR – 6.65; CI – 3.57-12.39) and 2013 (OR – 4.91; CI – 2.88-8.36) compared to Yoruba counterparts. Igbo male youth also had higher odds of engaging in SSPs for survey year 2003 and 2013. Similar associations were evident for Fulani youth (OR – 3.63; CI – 1.88-7.00) for year 2013 while Ijaw males were less likely to engage in SSP in 2008 (OR – 0.48; CI – 0.30-0.76). Males in the North East and North West had higher odds of engaging in SSP for the three survey years compared to counterparts in the South West.

Socio-economic characteristics

Males with higher education in 2003 (OR – 0.09; CI – 0.02-0.38), 2008 (OR – 0.23; CI – 0.14-0.38) and 2013 (OR – 0.29; CI – 0.18-0.47) had significantly lower odds of engaging in SSP compared to counterparts with no education. Youth who were working in the years 2003 (OR – 0.49; CI – 0.31-0.76), 2008 (OR – 0.61; CI – 0.52-0.73) and 2013 (OR – 0.41; CI – 0.35-0.48) had significantly lower odds of engaging in SSP compared to counterparts who were not working.

Other characteristics

Males who were exposed to mass media in 2003 (OR – 0.38; CI – 0.25-0.56), 2008 (OR – 0.66; CI – 0.56-0.77) and 2013 (OR – 0.64; CI – 0.55-0.74) had significantly lower odds of engaging in SSP compared to their counterparts who were not exposed to mass media. Similarly, high HIV knowledge among male youth was associated with lower odds of SSP but only significant in 2013 (OR – 0.19; CI – 0.08-0.43) compared to counterparts with low HIV knowledge.

Table 5.6b: Adjusted association between characteristics and SSP among males

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.12 (0.09-0.14) ***	0.22 (0.18-0.26) ***	0.15 (0.09-0.26) ***
Place of residence			
Urban			
Rural	0.81 (0.68-0.96) *	0.82 (0.68-0.99)	0.87 (0.56-1.35)
Religion			
Catholic			
Other Christian	1.22 (0.98-1.52)	1.14 (0.91-1.44)	1.70 (1.03-2.81) *
Muslim	2.24 (1.69-2.98) ***	1.74 (1.30-2.32) ***	1.80 (0.93-3.50)
Other	1.39 (0.63-3.06)	1.14 (0.58-2.23)	0.63 (0.10-3.96)
Ethnicity			
Yoruba			
Igbo	1.83 (1.20-2.79) ***	1.46 (0.93-2.30)	3.19 (1.20-8.44) *
Hausa	4.91 (2.88-8.36) ***	6.65 (3.57-12.39) ***	3.19 (1.11-9.16) *
Fulani	3.63 (1.88-7.00) ***	1.36 (0.78-2.37)	2.59 (0.54-12.49)
Ijaws	0.70 (0.46-1.08)	0.48 (0.30-0.76) ***	3.09 (0.75-12.67)
Others	1.09 (0.80-1.48)	0.88 (0.63-1.22)	1.90 (0.94-3.81)
Region			
South West			
North Central	1.03 (0.76-1.40)	2.11 (1.522.92) ***	1.06 (0.62-1.82)
North East	1.70 (1.18-2.44) ***	2.84 (1.91-4.22) ***	2.12 (1.02-4.38) *
North West	4.19 (2.51-6.99) ***	6.06 (3.53-10.38) ***	8.10 (3.74-17.53) ***
South East	0.82 (0.53-1.26)	1.74 (1.08-2.81) *	1.48 (0.76-2.89)
South South	0.64 (0.46-0.87) ***	1.34 (0.94-1.90)	1.00 (0.55-1.82)
Educational attainment			
No education			
Primary	0.63 (0.40-1.00)	0.69 (0.45-1.05)	0.19 (0.05-0.70) *
Secondary	0.64 (0.42-0.97) *	0.47 (0.32-0.69) ***	0.14 (0.03-0.51) ***
Higher	0.29 (0.18-0.47) ***	0.23 (0.14-0.38) ***	0.09 (0.02-0.38) ***
Work status			
No			

Yes	0.41 (0.35-0.48) ***	0.61 (0.52-0.73) ***	0.49 (0.31-0.76) ***
Wealth status			
Poor			
Middle	0.89 (0.70-1.12)	1.15 (0.92-1.44)	1.77 (1.00-3.11) *
Rich	0.93 (0.73-1.17)	1.12 (0.90-1.40)	1.22 (0.74-2.02)
Sex household head			
Male			
Female	0.95 (0.79-1.13)	1.05 (0.86-1.30)	0.69 (0.44-1.09)
Exposure to mass media			
No			
Yes	0.64 (0.55-0.74) ***	0.66 (0.56-0.77) ***	0.38 (0.25-0.56) ***
HIV Knowledge			
No			
Yes	0.19 (0.08-0.43) ***	0.69 (0.32-1.48)	0.36 (0.0-3.72)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.6 Adjusted association between characteristics and HIV testing among females

Demographic characteristics

The association between demographic characteristics and HIV testing among females in tables 5.7a show that being aged 18-24 was significantly associated with higher odds of HIV testing in 2003 (OR – 5.49; CI – 2.31-13.02), 2008 (OR – 2.42; CI – 1.89-3.10) and 2013 (OR – 3.09; CI – 2.61-3.67) compared to youth aged 15-17. Females who were Muslims and other Christians had significantly lower odds of testing for HIV in 2008 and 2013 compared to Catholic counterparts. Hausa (OR – 2.51; CI – 0.12-0.49) and Igbo (OR – 1.98; CI – 1.37-2.87) youth had higher odds of testing for HIV in 2013 compared to their Yoruba counterparts. Males from the North Central and South East had higher odds of testing for HIV compared to their counterparts in the South West region in 2008 and 2013.

Socio-economic characteristics

Being a female with higher education in 2008 (OR – 22.05; CI – 5.29-91.90) and 2013 (OR – 17.90; CI – 7.65-41.88) was significantly associated with higher odds of HIV testing compared to being a female with no education. By work status, females who were working were about two times more likely to test for HIV compared to their counterparts who were not working but this association was only significant in 2003 (OR – 1.73; CI – 1.03-2.91) and 2013 (OR – 1.76; CI – 1.53-2.04). Being a female from the rich quintile was associated with higher odds of HIV testing compared to being a female from the poor quintile but this association was only significant in 2008 (OR – 1.80; CI – 1.28-2.53).

Other characteristics

Female youth living in households headed by females (OR – 1.44; CI – 1.25-1.66) had higher odds of testing for HIV compared to counterparts living with households headed by males in 2013. Similarly, female youth who were exposed to mass media had higher odds of testing for HIV in the three survey years compared to counterparts who were not exposed to mass media but association was only significant in 2008 (OR – 1.98; CI – 1.62-2.43) and 2013 (OR – 1.43; CI – 1.24-1.65). High HIV knowledge was significantly associated with HIV testing among females in 2008 (OR – 2.03; CI – 1.02-4.03) and 2013 (OR – 2.67; CI – 1.50-4.77) compared to youth with low HIV knowledge.

Table 5.7a: Adjusted association between characteristics and HIV testing among females

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	3.09 (2.61-3.67) ***	2.42 (1.89-3.10) ***	5.49 (2.31-13.02) ***
Place of residence			
Urban			
Rural	1.10 (0.94-1.29)	0.85 (0.69-1.05)	0.64 (0.37-1.10)
Religion			
Catholic			
Other Christian	0.71 (0.59-0.86) ***	0.78 (0.61-0.98)*	0.72 (0.37-1.43)
Muslim	0.30 (0.23-0.39) ***	0.37 (0.25-0.55) ***	0.84 (0.43-1.62)
Other	0.15 (0.03-0.64) ***	1.04 (0.42-2.56)	0.89 (0.31-2.53)
Ethnicity			
Yoruba			
Igbo	1.98 (1.37-2.87) ***	1.33 (0.83-2.13)	0.56 (0.12-2.64)
Hausa	2.51 (0.12-0.49) ***	0.45 (0.17-1.16)	0.61 (0.04-7.99)
Fulani	0.59 (0.24-1.43)	na	na
Ijaws	1.32 (0.87-2.00)	0.87 (0.48-1.58	2.31 (0.43-12.44)
Others	1.74 (1.31-2.30) ***	1.60 (1.07-2.38)	1.63 (0.60-4.47)
Region			
South West			
North Central	1.56 (1.24-1.97) ***	1.66 (1.21-2.28) ***	1.41 (0.50-3.95)
North East	2.06 (1.54-2.76) ***	1.32 (0.83-2.09)	0.25 (0.02-2.28)
North West	1.04 (0.72-1.50)	1.35 (0.79-2.31)	0.75 (0.11-5.01)
South East	1.40 (1.11-1.78) **	2.17 (1.58-2.96) ***	7.04 (1.53-32.39) *
South South	1.19 (0.96-1.48)	2.10 (1.57-2.79) ***	2.53 (0.89-7.14)
Educational attainment			
No education			
Primary	3.41 (1.43-8.12) **	2.55 (0.58-11.08)	0.59 (0.06-5.86)
Secondary	5.37 (2.34-12.34) ***	4.70 (1.14-19.33)	1.62 (0.19-13.24)
Higher	17.90 (7.65-41.88) ***	22.05 (5.29-91.90) ***	3.22 (0.37-27.83)
Work status			
No			
Yes	1.76 (1.53-2.04) ***	1.19 (0.97-1.46)	1.73 (1.03-2.91) *
Wealth status			
Poor			
Middle	1.21 (0.94-1.56)	1.42 (0.99-2.05)	0.80 (0.33-1.94)
Rich	1.62 (1.27-2.06)	1.80 (1.28-2.53)***	1.51 (0.73-3.12)
Sex household head			
Male			
Female	1.44 (1.25-1.66) ***	0.96 (0.79-1.17)	0.92 (0.55-1.54)
Exposure to mass media			
No			
Yes	1.43 (1.24-1.65) ***	1.98 (1.62-2.43) ***	1.18 (0.72-1.92)
HIV Knowledge			
No			
Yes	2.67 (1.50-4.77) ***	2.03 (1.02-4.03) *	0.79 (0.09-6.52)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.7. Adjusted association between characteristics and HIV testing among males

Demographic characteristics

The association between demographic characteristics and HIV testing among males in tables 5.7b show that being aged 18-24 was significantly associated with higher odds of HIV testing in 2008 (OR – 2.16; CI – 1.52-3.07) and 2013 (OR – 2.72; CI – 2.09-3.54) compared to being 15-17. Males who were Muslims and other Christians had significantly lower odds of testing for HIV in 2008 and 2013 compared to Catholic counterparts. Male Ijaw youth (OR – 0.46; CI – 0.23-0.93) had significantly lower odds of testing for HIV compared to their Yoruba counterparts in 2013. Males from the North East (OR – 2.26; CI – 1.42-3.59) had higher odds of testing for HIV compared to their counterparts in the South West region in 2013.

Socio-economic characteristics

Males who had attained higher education in 2008 (OR – 9.29; CI – 3.41-25.34) and 2013 (OR – 17.81; CI – 8.52-37.21) had significantly higher odds of testing for HIV compared to counterparts with no education. By work status, males who were working were about two times more likely to test for HIV compared to their counterparts who were not working but this association was only significant in 2008 (OR – 1.55; CI – 1.20-2.01) and 2013 (OR – 1.69; CI – 1.39-2.05).

Other characteristics

Male youth who were exposed to mass media had higher odds of testing for HIV in 2003 (OR – 2.43; CI – 1.27-4.64), 2008 (OR – 1.79; CI – 1.35-2.38) and 2013 (OR – 1.90; CI – 1.56-2.32) compared to youth who had no mass media exposure. High HIV knowledge was significantly associated with HIV testing among females in 2013 (OR – 4.20; CI – 1.02-17.28) compared to low HIV knowledge among youth.

Table 5.7b: Adjusted association between characteristics and HIV testing among males

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	2.72 (2.09-3.54) ***	2.16 (1.52-3.07) ***	2.08 (0.87-4.93)
Place of residence			
Urban			
Rural	0.90 (0.73-1.12)	0.74 (0.56-0.99) *	0.82 (0.43-1.58)
Religion			
Catholic			
Other Christian	0.71 (0.55-0.93) *	0.59 (0.42-0.81) ***	0.72 (0.33-1.57)
Muslim	0.37 (0.26-0.52) ***	0.47 (0.29-0.74) ***	0.81 (0.33-1.97)
Other	0.56 (0.18-1.70)	0.88 (0.34-2.25)	na
Ethnicity			
Yoruba			
Igbo	0.93 (0.55-1.57)	0.69 (0.33-1.44)	4.81 (1.25-18.46)
Hausa	0.87 (0.48-1.57)	0.79 (0.34-1.85)	1.00 (0.23-4.30)
Fulani	1.05 (0.50-2.19)	1.92 (0.66-5.62)	1.43 (0.19-10.40)
Ijaws	0.46 (0.23-0.93) *	1.32 (0.62-2.77)	2.12 (0.17-25.45)
Others	1.18 (0.79-1.76)	1.67 (0.98-2.84)	0.95 (0.29-3.15)
Region			
South West			
North Central	1.48 (0.99-2.21)	0.64 (0.38-1.08)	2.38 (0.95-5.90)
North East	2.26 (1.42-3.59) ***	0.23 (0.11-0.49)	2.61 (0.87-7.83)
North West	0.77 (0.42-1.40)	0.46 (0.20-1.01)	1.02 (0.34-3.03)
South East	1.55 (0.91-2.63)	1.58 (0.75-3.32)	2.62 (0.86-8.01)
South South	1.15 (0.75-1.75)	0.83 (0.48-1.45)	1.34 (0.43-4.14)
Educational attainment			
No education			
Primary	2.27 (1.04-4.94) *	1.42 (0.51-3.97)	2.65 (0.31-22.81)
Secondary	4.05 (2.00-8.18)	2.12 (0.83-5.45)	3.12 (0.38-25.64)
Higher	17.81 (8.52-37.21) ***	9.29 (3.41-25.34) ***	14.23 (1.58-127.68) *
Work status			
No			
Yes	1.69 (1.39-2.05) ***	1.55 (1.20-2.01) ***	1.37 (0.72-2.62)
Wealth status			
Poor			
Middle	1.10 (0.80-1.50)	1.19 (0.80-1.77)	1.03 (0.37-2.80)
Rich	1.30 (0.96-1.76)	1.29 (0.88-1.88)	1.85 (0.77-4.44)
Sex household head			
Male			
Female	1.18 (0.94-1.48)	0.88 (0.64-1.22)	0.65 (0.28-1.50)
Exposure to mass media			
No			
Yes	1.90 (1.56-2.32) ***	1.79 (1.35-2.38) ***	2.43 (1.27-4.64) ***
HIV Knowledge			
No			
Yes	4.20 (1.02-17.28) *	1.60 (0.38-6.77)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.8 Adjusted association between characteristics and Condom use at last sex among females

Demographic characteristics

Females aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 in 2008 (OR – 1.86; CI – 1.39-2.48) and 2013 (OR – 1.44; CI – 1.12-1.85). Living in the rural area was associated with lower odds of condom use at last sex among females in 2008 (OR – 0.61; CI – 0.48-0.77) compared to their counterparts living in urban areas. By religion, Muslim youth (OR – 0.62; CI – 0.41-0.94) and youth who were other Christians (OR – 0.74; CI – 0.55-0.98) were less likely to use condom at last sex in 2008 compared to their Catholic counterparts.

Socio-economic characteristics

Higher education was significantly associated with condom use at last sex among females compared to counterparts with no education in 2008 (OR – 12.70; CI – 1.67-96.30) and 2013 (OR – 13.08; CI – 3.03-56.48). Living in a rich household in 2008 (OR – 1.65; CI – 1.18-1.30) and 2013 (OR – 2.06; CI – 1.47-2.88) was associated with condom use at last sex compared with youth living in a poor household.

Other characteristics

Females who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media in 2008 (OR – 1.62; CI – 1.30-2.02) and 2013 (OR – 1.57; CI – 1.30-1.90).

Table 5.8a: Adjusted association between characteristics and condom use among females

Characteristics	2013	2008	2003
	CC use	CC use	CC use
Age			
15-17			
18-24	1.44 (1.12-1.85) **	1.86 (1.39-2.48) ***	1.12 (0.64-1.96)
Place of residence			
Urban			
Rural	0.81 (0.66-1.00)	0.61 (0.48-0.77) ***	1.02 (0.62-1.70)
Religion			
Catholic			
Other Christian	0.82 (0.63-1.07)	0.74 (0.55-0.98) *	1.18 (0.62-2.22)
Muslim	0.86 (0.59-1.27)	0.62 (0.41-0.94)*	0.96 (0.39-2.01)
Other	0.59 (0.19-1.86)	1.11 (0.36-3.43)	0.88 (0.39-2.01)
Ethnicity			
Yoruba			
Igbo	1.41 (0.84-2.37)	1.73 (1.00-3.00)	1.38 (0.46-4.11)
Hausa	0.87 (0.22-3.36)	2.26 (0.75-6.77)	4.68 (0.23-95.22)
Fulani	na	2.30 (0.19-27.05)	na
Ijaws	1.37 (0.85-2.21)	0.51 (0.28-0.92)	0.44 (0.19-1.04)
Others	1.29 (0.89-1.88)	1.25 (0.81-1.94)	0.84 (0.37-1.91)
Region			
South West			
North Central	1.09 (0.80-1.50)	0.99 (0.71-1.39)	0.40 (0.20-0.80) *
North East	0.52 (0.32-0.86) *	0.62 (0.37-1.05)	0.13 (0.02-0.64) *
North West	1.15 (0.64-2.05)	0.71 (0.29-1.77)	0.35 (0.08-1.50)
South East	1.65 (1.21-2.27) **	1.12 (0.78-1.61)	0.16 (0.04-0.52)
South South	0.88 (0.69-1.14)	0.97 (0.74-1.29)	0.25 (0.10-0.61)
Educational attainment			
No education			
Primary	4.57 (1.04-20.03) *	5.15 (0.66-39.65)	0.82 (0.14-4.57)
Secondary	7.69 (1.82-32.48) **	8.47 (1.13-63.09)*	1.60 (0.32-8.01)
Higher	13.08 (3.03-56.48) ***	12.70 (1.67-96.30)	3.04 (0.54-16.87)
Work status			
No			
Yes	1.04 (0.86-1.26)	1.13 (0.91-1.40)	0.66 (0.40-1.08)
Wealth status			
Poor			
Middle	1.50 (1.06-2.12) *	1.24 (0.87-1.78)	0.83 (0.38-1.83)
Rich	2.06 (1.47-2.88) ***	1.65 (1.18-1.30) ***	1.60 (0.83-3.06)
Sex household head			
Male			
Female	0.88 (0.73-1.06)	0.97 (0.79-1.19)	1.28 (0.81-2.02)
Exposure to mass media			
No			
Yes	1.57 (1.30-1.90) ***	1.62 (1.30-2.02) ***	2.26 (0.79-1.98)
HIV Knowledge			
No			
Yes	1.69 (0.81-3.52)	0.52 (0.23-1.16)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

5.3.9 Adjusted association between characteristics and Condom use at last sex among males

Demographic characteristics

The results in table 5.8b show that males aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 but association was only significant in 2008 (OR – 1.92; CI – 1.30-2.83). Living in the rural area compared to living in an urban area was associated with lower odds of condom use at last sex among males in 2008 (OR – 0.71; CI – 0.53-0.96) and 2013 (OR – 0.65; CI – 0.50-0.84). Hausa male youth had lower odds of using condoms in 2003 (OR – 0.15; CI – 0.02-0.92) but higher odds of using condoms at last sex in 2013 (OR – 3.04; CI – 1.04-8.84) compared to their Yoruba counterparts.

Socio-economic characteristics

Higher education was significantly associated with condom use at last sex among males compared to counterparts with no education in 2008 (OR – 6.23; CI – 2.09-20.95) and 2013 (OR – 4.70; CI – 1.93-11.93). Youth who belonged to the rich quintile in 2003 (OR – 2.29; CI – 1.03-5.05) 2008 (OR – 1.88; CI – 1.31-2.72) and 2013 (OR – 1.64; CI – 1.10-2.33) had higher odds of using condoms at last sex compared to their counterparts in poor households.

Other characteristics

Males who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media in 2008 (OR – 1.63; CI – 1.25-2.13) and 2013 (OR – 1.53; CI – 1.21-1.93).

Table 5.8b: Adjusted association between characteristics and condom use among males

Characteristics	2013	2008	2003
	CC use	CC use	CC use
Age			
15-17			
18-24	1.17 (0.79-1.73)	1.92 (1.30-2.83) ***	2.41 (0.78-7.41)
Place of residence			
Urban			
Rural	0.65 (0.50-0.84) ***	0.71 (0.53-0.96) *	0.61 (0.29-1.28)
Religion			
Catholic			
Other Christian	0.77 (0.55-1.08)	0.81 (0.57-1.16)	1.71 (0.79-3.67)
Muslim	0.86 (0.56-1.08	0.66 (0.42-1.02)	1.64 (0.64-4.15)
Other	0.35 (0.11-1.15)	0.28 (0.08-0.88) *	na
Ethnicity			
Yoruba			
Igbo	1.16 (0.56-2.40)	1.58 (0.72-3.42)	0.74 (0.14-3.88)
Hausa	3.04 (1.04-8.85) *	1.38 (0.46-4.07)	0.15 (0.02-0.92) *
Fulani	0.63 (0.15-2.55)	0.25 (0.05-1.26)	3.80 (0.28-50.68)
Ijaws	0.32 (0.17-0.61) ***	0.30 (0.14-0.61) ***	0.46 (0.05-4.11)
Others	0.77 (0.46-1.28)	0.80 (0.47-1.36)	0.55 (0.17-1.80)
Region			
South West			
North Central	2.54 (1.51-4.28) ***	0.65 (0.38-1.11)	0.58 (0.25-1.32)
North East	0.73 (0.39-1.35)	0.37 (0.18-0.72) ***	0.33 (0.10-1.01)
North West	0.42 (0.16-1.07)	0.54 (0.20-1.45)	1.21 (0.24-6.13)
South East	0.91 (0.43-1.90)	0.62 (0.27-1.43)	1.33 (0.45-3.88)
South South	1.58 (0.96-2.61)	0.88 (0.50-1.53)	0.63
Educational attainment			
No education			
Primary	1.06 (0.44-2.51)	1.71 (0.54-5.44)	na
Secondary	1.93 (0.86-4.31)	3.34 (1.13-9.83) *	na
Higher	4.70 (1.93-11.39) ***	6.23 (2.09-20.95) ***	na
Work status			
No			
Yes	1.23 (0.97-1.56)	1.08 (0.83-1.40)	0.86 (0.44-1.69)
Wealth status			
Poor			
Middle	1.11 (0.76-1.60)	1.32 (0.90-1.91)	1.33 (0.53-3.36)
Rich	1.64 (1.10-2.33) *	1.88 (1.31-2.72)	2.29 (1.03-5.05)
Sex household head			
Male			
Female	1.21 (0.92-1.59)	1.14 (0.82-.58)	0.68 (0.33-1.40)
Exposure to mass media			
No			
Yes	1.53 (1.21-1.93) ***	1.63 (1.25-2.13) ***	1.51 (0.77-2.97)
HIV Knowledge			
No			
Yes	0.56 (0.12-2.62)	1.40 (0.32-6.04)	na

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

Chapter 6

Neighbourhood Determinants of Protective Sexual Behaviours among youth in Nigeria

This chapter presents the neighbourhood determinants of protective sexual behaviours among youth in Nigeria.

6.1 Bivariate Associations

The results in tables 6 present the unadjusted association between neighbourhood characteristics and protective sexual behaviours among youth in Nigeria.

6.1.1 Unadjusted association between community characteristics and abstinence in the selected sites

The results in table 6.1 show the unadjusted association between community characteristics from the selected sites and abstinence. Youth who attended schools managed by a religious group (OR – 1.40; CI – 1.04-1.89) had significantly higher odds of primary abstinence. Low levels of social capital in the community was associated with significantly lower odds of abstaining among the youth. Youth who reported that there were recreational resources in the neighbourhood had lower odds of abstaining but different results were seen in Kano state (OR – 2.02; CI – 1.35-3.02) where availability of recreational resources significantly increased the odds of abstinence among the youth.

Table 6.1 Unadjusted association between community characteristics and abstinence in the selected sites

Characteristics	Edo	Enugu	Kano	Osun	Total
Ever attend single sex school					
No					
Yes	0.34 (0.22-0.53) ***	1.44 (1.01-2.05) *	1.28 (0.90-1.83)	0.62 (0.38-1.011)	0.92 (0.76-1.11)
School management type					
Government					
Private	0.46 (0.32-0.66) ***	0.62 (0.42-0.87) ***	1.70 (1.17-2.47) ***	1.42 (0.94-2.14)	0.89 (0.74-1.07)
School managed by religious group					
No					
Yes	0.41 (0.21-0.81) **	1.97 (1.19-3.25) ***	1.44 (0.74-2.80)	1.01 (0.44-2.31)	1.40 (1.04-1.89) **
Have role models					
No					
Yes	0.53 (0.37-0.75) ***	1.99 (1.41-2.80) ***	1.13 (0.80-1.58)	1.16 (0.79-1.71)	1.13 (0.95-1.35)
Social capital					
High					
Low	0.25 (0.17-0.36) ***	0.66 (0.47-0.93) *	0.69 (0.49-0.98) *	0.40 (0.26-0.61) ***	0.49 (0.41-0.59) ***
Availability of recreational resources					
No					
Yes	0.28 (0.19-0.41) ***	0.53 (0.37-0.74) ***	2.02 (1.35-3.02)***	0.39 (0.26-0.58) ***	0.63 (0.53-0.75) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.2 Unadjusted association between community characteristics and SSP among females

The unadjusted association between community characteristics and SSP shows that female youth who resided in communities with a high percentage of women with secondary and higher education had lower odds of engaging in SSP in 2003 (OR – 0.29; CI – 0.16-0.52), 2008 (OR – 0.12; CI – 0.08-0.18) and 2013 (OR – 0.10; CI – 0.07-0.16). Female youth residing in communities with a higher percentage of women belonging to the poor wealth quintile had higher odds of engaging in SSP in 2008 (OR – 1.22; CI – 1.09-1.36) and 2013 (OR – 1.48; CI – 1.34-1.65).

Female youth living in ethnic diverse communities were more likely to engage in SSP in 2013 (OR – 1.14; CI – 1.01-1.29). Similarly, female youth who resided in communities with a high percentage of women testing for HIV were significantly more likely to engage in SSP in 2008 (OR – 2.05; CI – 1.66-2.52) and 2013 (OR – 2.07; CI – 1.86-2.32). Female youth residing in communities with high exposure to mass media were less likely to engage in SSP in 2008 (OR – 0.85; CI – 0.73-0.93).

Table 6.2a: Unadjusted association between community characteristics and SSP among females

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Community education: % of women with at least a secondary education			
Low			
High	0.10 (0.07-0.16) ***	0.12 (0.08-0.18) ***	0.29 (0.16-0.52) ***
Community poverty: % of women in the poor wealth quintile			
Low			
High	1.48 (1.34-1.65) ***	1.22 (1.09-1.36) ***	1.10 (0.91-1.32)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.14 (1.01-1.29)*	0.97 (0.85-1.10)	na
Community HIV testing: % of women who tested for HIV			
Low			
High	2.07 (1.86-2.32) ***	2.05 (1.66-2.52) ***	1.17 (0.97-1.42)
Community mass media exposure			
Low			
High	1.15 (0.98-1.36)	0.85 (0.73-0.93) ***	0.97 (0.79-1.19)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.3 Unadjusted association between community characteristics and SSP among males

The unadjusted association between community characteristics and SSP shows that male youth who resided in communities with a high percentage of men with

secondary and higher education had lower odds of engaging in SSP in 2003 (OR – 0.28; CI – 0.15-0.54), 2008 (OR – 0.08; CI – 0.05-0.12) and 2013 (OR – 0.08; CI – 0.05-0.12) compared to their counterparts who resided in communities with a low percentage of men with secondary and higher education. Male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had higher odds of engaging in SSP in 2008 (OR – 1.51; CI – 1.31-1.73) and 2013 (OR – 1.99; CI – 1.76-2.26) compared to their counterparts residing in communities with a higher percentage of men belonging to the rich wealth quintile. Male youth living in ethnic diverse communities were more likely to engage in SSP in the three survey years but was only significant in 2008 (OR – 1.24; CI – 1.06-1.45) and 2013 (OR – 1.47; CI – 1.27-1.69). Similarly, male youth who resided in communities with a high percentage of men testing for HIV were significantly more likely to engage in SSP in 2003 (OR – 1.74; CI – 1.14-2.67) and 2013 (OR – 2.78; CI – 2.20-3.43) compared to their counterparts residing in in communities with a low percentage of men testing for HIV. Male youth residing in communities with high exposure to mass media were less likely to engage in SSP in 2003 (OR – 0.60; CI – 0.39-0.93) 2008 (OR – 0.57; CI – 0.50-0.66) but had higher odds of engaging in SSP in 2013 (OR – 1.68; CI – 1.22-2.33).

Table 6.2b: Unadjusted association between community characteristics and SSP among males

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Community education: % of men with at least a secondary education			
Low			
High	0.08 (0.05-0.12) ***	0.08 (0.05-0.12) ***	0.28 (0.15-0.54) ***
Community poverty: % of men in the poor wealth quintile			
Low			
High	1.99 (1.76-2.26) ***	1.51 (1.31-1.73) ***	1.09 (0.86-1.39)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	1.47 (1.27-1.69) ***	1.24 (1.06-1.45) ***	1.34 (0.98-1.82)
Community HIV testing: % of men who tested for HIV			
Low			

High	2.78 (2.20-3.43)***	0.98 (0.76-1.25)	1.74 (1.14-2.67) **
Community mass media exposure			
Low			
High	1.68 (1.22-2.33) ***	0.57 (0.50-0.66) ***	0.60 (0.39-0.93) *

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.4 Unadjusted association between community characteristics and HIV testing among females

The unadjusted association between community characteristics and HIV testing shows that female youth who resided in communities with a high percentage of secondary and higher education were more likely to test for HIV in 2008 (OR – 20.82; CI – 9.60-45.17) and 2013 (OR – 17.00; CI – 9.93-29.10). On the other hand, female youth residing in communities with a higher percentage of women belonging to the poor wealth quintile had lower odds of being tested for HIV in 2008 (OR – 0.53; CI – 0.45-0.62) and 2013 (OR – 0.64; CI – 0.57-0.71). Female youth living in ethnic diverse communities were more likely to test for HIV in 2008 (OR – 1.21; CI – 1.01-1.45) but less likely to test for HIV in 2013 (OR – 0.85; CI – 0.75-0.96). Female youth who resided in communities with a high percentage of women engaging in SSP were significantly less likely to test for HIV in 2003 (OR – 0.53; CI – 0.38-0.74), 2008 (OR – 0.54; CI – 0.46-0.65) and 2013 (OR – 0.50; CI – 0.45-0.57). Female youth residing in communities with high exposure to mass media had higher odds of testing for HIV in all the survey years but this association was significant in 2008 (OR – 1.69; CI – 1.43-1.99) and 2013 (OR – 1.52; CI – 1.35-1.71).

Table 6.3a: Unadjusted association between community characteristics and HIV testing among females

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Community education: % of women with at least a secondary education			
Low			
High	17.00 (9.93-29.10) ***	20.82 (9.60-45.17) ***	3.32 (0.86-12.82)
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.64 (0.57-0.71) ***	0.53 (0.45-0.62) ***	1.00 (0.69-1.46)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	0.85 (0.75-0.96) *	1.21 (1.01-1.45) *	na
Community SSP: % of women engaging in Ssp			
Low			
High	0.50 (0.45-0.57) ***	0.54 (0.46-0.65) ***	0.53 (0.38-0.74) ***
Community mass media exposure			
Low			
High	1.52 (1.35-1.71) ***	1.69 (1.43-1.99) ***	1.42 (0.95-2.12

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.5 Unadjusted association between community characteristics and HIV testing among males

The unadjusted association between community characteristics and HIV testing shows that male youth who resided in communities with a high percentage of males with secondary and higher education were more likely to test for HIV in 2003 (OR – 3.01; CI – 1.11-8.14), 2008 (OR – 11.41; CI – 5.76-22.60) and 2013 (OR – 14.16; CI – 8.07-24.82) compared to their counterparts who resided in communities with a low percentage of males with secondary and higher education. On the other hand, male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had lower odds of being tested for HIV in 2003 (OR – 0.69; CI – 0.47-0.99), 2008 (OR – 0.56; CI – 0.46-0.67) and 2013 (OR – 0.62; CI – 0.53-0.72) compared to their counterparts who resided in communities with a low percentage of men belonging to the poor

wealth quintile. Male youth living in ethnic diverse communities were less likely to test for HIV in 2013 (OR – 0.69; CI – 0.58-0.81) compared with counterparts in ethnic homogenous communities. Male youth who resided in communities with a high percentage of men engaging in SSP were significantly less likely to test for HIV in 2003 (OR – 0.31; CI – 0.17-0.56), 2008 (OR – 0.52; CI – 0.43-0.62) and 2013 (OR – 0.34; CI – 0.26-0.43) compared to their counterparts who resided in communities with a low percentage of men engaging in SSP. Male youth residing in communities with high exposure to mass media had significantly higher odds of testing for HIV in 2008 (OR – 1.59; CI – 1.33-1.91).

Table 6.3b: Unadjusted association between community characteristics and HIV testing among males

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Community education: % of men with at least a secondary education			
Low			
High	14.16 (8.07-24.82) ***	11.41 (5.76-22.60) ***	3.01 (1.11-8.14) *
Community poverty: % of men in the poor wealth quintile			
Low			
High	0.62 (0.53-0.72) ***	0.56 (0.46-0.67) ***	0.69 (0.47-0.99) *
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	0.69 (0.58-0.81) ***	0.88 (0.72-1.06)	0.93 (0.60-1.43)
Community SSP: % of men engaging in Ssp			
Low			
High	0.34 (0.26-0.43) ***	0.52 (0.43-0.62) ***	0.31 (0.17-0.56) ***
Community mass media exposure			
Low			
High	0.95 (0.68-1.33)	1.59 (1.33-1.91) ***	1.21 (0.66-2.23)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.6 Unadjusted association between community characteristics and condom use among females

The unadjusted association between community characteristics and condom use at last sex shows that female youth who resided in communities with a high

percentage of women with secondary and higher education were more likely to use condoms at last sex in 2003(OR – 4.68; CI – 1.38-15.88), 2008 (OR – 18.73; CI – 7.31-47.96) and 2013 (OR – 22.04; CI – 9.97-4.72). On the other hand, female youth residing in communities with a higher percentage of women belonging to the poor wealth quintile had lower odds of using condoms at last sex in 2003 (OR – 0.65; CI – 0.48-0.88), 2008 (OR – 0.58; CI – 0.46-0.64) and 2013 (OR – 0.56; CI – 0.49-0.64). Female youth living in ethnic diverse communities were more likely to use condoms at last sex in 2008 (OR – 1.30; CI – 1.09-1.55) and 2013 (OR – 1.33; CI – 1.15-1.54). Female youth who resided in communities with a high percentage of women engaging in SSP had higher odds of using condoms in the three survey years but was only significant in 2003 (OR – 1.63; CI – 1.04-2.56). Female youth residing in communities with a high percentage of women testing for HIV were significantly less likely to use condoms in 2008 (OR – 0.51; CI – 0.38-0.67) and 2013 (OR – 0.77; CI – 0.66-0.90). Female youth residing in communities with high exposure to mass media had higher odds of testing for HIV in all the survey years but this association was significant in 2003 (OR – 2.03; CI – 1.45-2.85) and 2008 (OR – 1.64; CI – 1.38-1.95).

Table 6.4a: Unadjusted association between community characteristics and condom use among females

Characteristics	2013	2008	2003
	Ccuse	Ccuse	Ccuse
Community education: % of women with at least a secondary education			
Low			
High	22.04 (9.97-48.72) ***	18.73 (7.31-47.96) ***	4.68 (1.38-15.88) ***
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.56 (0.49-0.64) ***	0.58 (0.46-0.64) ***	0.65 (0.48-0.88) ***
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.33 (1.15-1.54) ***	1.30 (1.09-1.55) ***	na
Community SSP: % of women engaging in Ssp			
Low			
High	1.15 (0.95-1.38)	1.17 (0.95-1.45)	1.63 (1.04-2.56) *

Community HIV testing: % of women who tested for HIV			
Low			
High	0.77 (0.66-0.90) ***	0.51 (0.38-0.67) ***	1.20 (0.87-1..66)
Community mass media exposure			
Low			
High	1.03 (0.84-1.28)	1.64 (1.38-1.95) ***	2.03 (1.45-2.85) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.1.7 Unadjusted association between community characteristics and condom use among males

The unadjusted association between community characteristics and condom use at last sex shows that male youth who resided in communities with a high percentage of men with secondary and higher education were more likely to use condoms at last sex in 2003 (OR – 7.35; CI – 2.14-25.27), 2008 (OR – 16.90; CI – 7.51-38.02) and 2013 (OR – 7.70; CI – 3.68-16.11) compared to their counterparts who resided in communities with a low percentage of men with secondary and higher education. On the other hand, male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had lower odds of using condoms at last sex in 2003 (OR – 0.48; CI – 0.32-0.72), 2008 (OR – 0.44; CI – 0.36-0.54) and 2013 (OR – 0.52; CI – 0.43-0.63) compared to their counterparts living in communities with a lower percentage of men belonging to the poor wealth quintile. Male youth living in ethnic diverse communities were more likely to use condoms at last sex in the three survey years compared to their counterparts living in ethnic homogenous communities but this association was only significant in 2003 (OR – 1.88; CI – 1.12-3.13). Male youth residing in communities with a high percentage of men testing for HIV were significantly less likely to use condoms in 2003 (OR – 0.47; CI – 0.23-1.78), 2008 (OR – 0.60; CI – 0.43-0.84) and 2013 (OR – 0.58; CI – 0.43-0.78) compared to their counterparts living in communities with a lower percentage of men testing for HIV.

Table 6.4b: Unadjusted association between community characteristics and condom use among males

Characteristics	2013	2008	2003
	Ccuse	Ccuse	Ccuse
Community education: % of men with at least a secondary education			
Low			
High	7.70 (3.68-16.11) ***	16.90 (7.51-38.02) ***	7.35 (2.14-25.27) ***
Community poverty: % of men in the poor wealth quintile			
Low			
High	0.52 (0.43-0.63) ***	0.44 (0.36-0.54) ***	0.48 (0.32-0.72) ***
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	1.02 (0.84-1.23)	1.21 (0.98-1.49)	1.88 (1.12-3.13) **
Community SSP: % of men engaging in Ssp			
Low			
High	0.83 (0.59-1.17)	0.74 (0.53-1.03)	0.83 (0.38-1.78)
Community HIV testing: % of men who tested for HIV			
Low			
High	0.58 (0.43-0.78) ***	0.60 (0.43-0.84) ***	0.47 (0.23-0.95) *
Community mass media exposure			
Low			
High	1.07 (0.65-1.77)	1.81 (1.47-2.23) ***	1.52 (0.72-3.19)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2 Multivariate Associations

In the following models, we included all community characteristics and protective sexual behaviour variables

6.2.1 Adjusted association of community variables only and SSP among females

The model in table 6.5a shows the adjusted relationship between community variables and SSP. In this model, female youth who resided in communities with a high percentage of women with secondary and higher education had significantly lower odds of engaging in SSP 2013 (OR – 0.25; CI – 0.15-0.39). Youth in ethnic diverse communities (OR – 1.17; CI – 1.03-1.31) had higher odds of engaging in SSP in 2013 and female youth who resided in communities with a high percentage of women testing for HIV were significantly more likely to engage in SSP in the three survey years.

6.2.2 Adjusted association between community variables and abstinence among youth in selected sites

The results in table 6.5 show the adjusted association between community characteristics from the selected sites and abstinence. Youth who attended private schools (OR – 0.78; CI – 0.62-0.99) had lower odds of abstaining from sex compared to their counterparts that attended government managed schools. Youth who attended schools managed by a religious group (OR – 1.53; CI – 1.12-2.08) had significantly higher odds of primary abstinence. Low levels of social capital (OR – 0.48; CI – 0.38-0.60) in the community was associated with significantly lower odds of abstaining among the youth. Youth who reported that there were recreational resources (OR – 0.54; CI – 0.43-0.68) in the neighbourhood had lower odds of abstaining.

Table 6.5: Adjusted association between community variables and abstinence among youth in selected sites

Characteristics	Edo	Enugu	Kano	Osun	Total
Ever attend single sex school					
No					
Yes	0.41 (0.24-0.70) ***	1.27 (0.82-1.97)	0.83 (0.44-1.57)	0.71 (0.35-1.40)	0.80 (0.62-1.02)
School management type					
Government					
Private	0.55 (0.35-0.86) **	0.73 (0.47-1.12)	1.48 (0.75-2.92)	1.01 (0.58-1.78)	0.78 (0.62-0.99) *
School managed by religious group					
No					
Yes	0.86 (0.40-1.84)	1.54 (0.90-2.65)	1.44 (0.70-2.96)	1.17 (0.49-2.79)	1.53 (1.12-2.08) **
Have role models					
No					
Yes	0.73 (0.46-1.15)	2.04 (1.31-3.17) ***	1.42 (0.77-2.61)	0.58 (0.33-1.04)	1.10 (0.88-1.39)
Social capital					
High					
Low	0.27 (0.17-0.41) ***	0.69 (0.46-1.03)	0.52 (0.28-0.97) *	0.53 (0.27-1.02)	0.48 (0.38-0.60) ***
Availability of recreational resources					
No					
Yes	0.36 (0.22-0.57) ***	0.39 (0.25-0.60) ***	1.24 (0.66-2.35)	0.48 (0.26-0.91) *	0.54 (0.43-0.68) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.3 Adjusted association of community variables only and SSP among females

The results in table 6.6a shows the adjusted relationship between community variables and SSP. Female youth who resided in communities with a high percentage of women with secondary and higher education had lower odds of engaging in SSP in 2003 (OR – 0.22; CI – 0.11-0.42), 2008 (OR – 0.10; CI – 0.06-0.17) and 2013 (OR – 0.25; CI – 0.15-0.39).

Table 6.6a: Adjusted association of community variables only and SSP among females

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Community education: % of women with at least a secondary education			
Low			
High	0.25 (0.15-0.39) ***	0.10 (0.06-0.17)	0.22 (0.11-0.42)
Community poverty: % of women in the poor wealth quintile			
Low			
High	1.08 (0.97-1.22)	0.85 (0.74-0.98)	1.09 (0.87-1.36)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.17 (1.03-1.31) ***	1.07 (0.94-1.22)	na
Community HIV testing: % of women who tested for HIV			
Low			
High	1.69 (1.51-1.90) ***	1.67 (1.35-2.06) ***	1.28 (1.05-1.56) **
Community mass media exposure			
Low			
High	1.07 (0.92-1.25)	1.04 (0.90-1.21)	1.21 (0.94-1.56)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.3 Adjusted association of community variables only and SSP among males

The results in table 6.6b shows the adjusted relationship between community variables and SSP. Male youth who resided in communities with a high percentage of men with secondary and higher education had lower odds of engaging in SSP in 2003 (OR – 0.31; CI – 0.16-0.61), 2008 (OR – 0.09; CI – 0.05-0.14) and 2013 (OR – 0.25; CI – 0.15-0.40) compared to their counterparts who resided in communities that had a low percentage of men with secondary and higher education. Male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had lower odds of engaging in SSP in 2003 and 2008 but higher odds of engaging in SSP in 2013 (OR – 1.49; CI – 1.29-1.72) compared to their counterparts residing in communities with a lower percentage of men in the poor wealth quintile. Male youth living in ethnic diverse communities were more likely to engage in SSP in the three survey years but was only significant in 2013 (OR – 1.45; CI – 1.27-1.65) compared to their

counterparts living in less heterogeneous communities. Similarly, male youth who resided in communities with a high percentage of men testing for HIV were significantly more likely to engage in SSP in 2003 (OR – 1.74; CI – 1.14-2.67) and 2013 (OR – 1.73; CI – 1.40-2.13) compared to their counterparts living in communities with a low percentage of men testing for HIV. Male youth residing in communities with high exposure to mass media were less likely to engage in SSP in 2008 (OR – 0.76; CI – 0.65-0.89) compared to their counterparts living in communities with a low percentage of men exposed to mass media.

Table 6.6b: Adjusted association of community variables only and SSP among males

Characteristics	2013 SSP	2008 SSP	2003 SSP
Community education: % of men with at least a secondary education			
Low			
High	0.25 (0.15-0.40) ***	0.09 (0.05-0.14) ***	0.31 (0.16-0.61) ***
Community poverty: % of men in the poor wealth quintile			
Low			
High	1.49 (1.29-1.72) ***	0.88 (0.76-1.04)	0.89 (0.69-1.14)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	1.45 (1.27-1.65) ***	1.15 (0.99-1.34)	1.25 (0.93-1.70)
Community SSP: % of men engaging in Ssp			
Low			
High	na	na	na
Community HIV testing: % of men who tested for HIV			
Low			
High	1.73 (1.40-2.13) ***	1.11 (0.88-1.40)	1.74 (1.14-2.67) *
Community mass media exposure			
Low			
High	1.47 (1.09-1.97)	0.76 (0.65-0.89) ***	0.64 (0.42-1.00)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.4 Adjusted association of community variables only and HIV testing among females

The adjusted association between community characteristics and HIV testing shows that female youth who resided in communities with a high percentage of women with secondary and higher education were more likely to test for HIV in 2008 (OR – 5.56; CI – 2.38-13.01) and 2013 (OR – 8.33; CI – 4.60-15.08). On the contrary, female youth residing in communities with a higher percentage of women belonging to the poor wealth quintile had lower odds of being tested for HIV in 2008 (OR – 0.71; CI – 0.58-0.87) and 2013 (OR – 0.84; CI – 0.75-0.95). Female youth living in ethnic diverse communities were less likely to test for HIV in 2013 (OR – 0.78; CI – 0.69-0.89). Female youth who resided in communities with a high percentage of women engaging in SSP were significantly less likely to test for HIV in 2003 (OR – 0.53; CI – 0.38-0.74), 2008 (OR – 0.63; CI – 0.53-0.75) and 2013 (OR – 0.61; CI – 0.54-0.68).

Table 6.7a: Adjusted association of community variables only and HIV testing among females

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Community education: % of women with at least a secondary education			
Low			
High	8.33 (4.60-15.08) ***	5.56 (2.38-13.01) ***	3.32 (0.86-12.82)
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.84 (0.75-0.95) **	0.71 (0.58-0.87) ***	1.00 (0.69-1.46)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	0.78 (0.69-0.89) ***	0.91 (0.76-1.10)	na
Community SSP: % of women engaging in Ssp			
Low			
High	0.61 (0.54-0.68) ***	0.63 (0.53-0.75) ***	0.53 (0.38-0.74) ***
Community mass media exposure			
Low			
High	0.95 (0.81-1.12)	1.19 (0.97-1.45)	1.42 (0.95-2.12)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.5 Adjusted association of community variables only and HIV testing among males

The adjusted association between community characteristics and HIV testing shows that male youth who resided in communities with a high percentage of men who had attained secondary and higher education were more likely to test for HIV in 2008 (OR – 3.48; CI – 1.60-7.52) and 2013 (OR – 9.64; CI – 5.03-18.45). On the other hand, male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had lower odds of being tested for HIV in the three survey years but association was only significant in 2008 (OR – 0.71; CI – 0.58-0.89). Male youth living in ethnic diverse communities were less likely to test for HIV in 2013 (OR – 0.75; CI – 0.64-0.88). Male youth who resided in communities with a high percentage of men engaging in SSP were significantly less likely to test for HIV in 2003 (OR – 0.33; CI – 0.18-0.61), 2008 (OR – 0.64; CI – 0.53-0.77) and 2013 (OR – 0.50; CI – 0.39-0.64).

Table 6.7b: Adjusted association of community variables only and HIV testing among males

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Community education: % of men with at least a secondary education			
Low			
High	9.64 (5.03-18.45) ***	3.48 (1.60-7.52) ***	1.81 (0.64-5.08)
Community poverty: % of men in the poor wealth quintile			
Low			
High	0.97 (0.82-1.16)	0.71 (0.58-0.89) ***	0.76 (0.52-1.10)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	0.75 (0.64-0.88) ***	0.85 (0.70-1.03)	0.93 (0.61-1.44)
Community SSP: % of men engaging in Ssp			
Low			
High	0.50 (0.39-0.64) ***	0.64 (0.53-0.77) ***	0.33 (0.18-0.61) ***
Community mass media exposure			
Low			
High	1.22 (0.89-1.66)	1.16 (0.95-1.41)	0.92 (0.50-1.69)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.6 Adjusted association between community variables only and condom use among females

The adjusted association between community characteristics and condom use at last sex shows that female youth who resided in communities with a high percentage of women who had secondary and higher education were more likely to use condoms at last sex in 2008 (OR – 4.95; CI – 1.88-13.02) and 2013 (OR – 6.99; CI – 3.01-16.21). On the other hand, female youth residing in communities with a higher percentage of women belonging to the poor wealth quintile had lower odds of using condoms at last sex in 2008 (OR – 0.71; CI – 0.58-0.85) and 2013 (OR – 0.69; CI – 0.60-0.80). Female youth who resided in communities with a high percentage of women engaging in SSP had higher odds of using condoms in the three survey years but was only significant in 2003 (OR – 1.72; CI – 1.11-2.66) and 2013 (OR – 1.26; CI – 1.06-1.51). Female youth residing in communities with a high percentage of women testing for HIV were significantly less likely to use condoms in 2008 (OR – 0.68; CI – 0.52-0.88). Female youth residing in communities with high exposure to mass media had higher odds of testing for HIV in all the survey years but this association was only significant in 2003 (OR – 1.77; CI – 0.01-0.21).

Table 6.8a: Adjusted association between community variables only and condom use among females

Characteristics	2013	2008	2003
	CC use	CC use	CC use
Community education: % of women with at least a secondary education			
Low			
High	6.99 (3.01-16.21) ***	4.95 (1.88-13.02) ***	1.62 (0.47-5.53)
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.69 (0.60-0.80) ***	0.71 (0.58-0.85) ***	0.87 (0.61-1.25)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.13 (0.98-1.30)	1.01 (0.85-1.20)	na

Community SSP: % of women engaging in Ssp			
Low			
High	1.26 (1.06-1.51) ***	1.27 (1.04-1.55)	1.72 (1.11-2.66) *
Community HIV testing: % of women who tested for HIV			
Low			
High	0.86 (0.74-1.00)	0.68 (0.52-0.88) ***	1.03 (0.74-1.41)
Community mass media exposure			
Low			
High	1.14 (0.94-1.39)	1.11 (0.91-1.35)	1.77 (0.01-0.21) ***

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.2.7 Adjusted association between community variables only and condom use among males

The adjusted association between community characteristics and condom use at last sex shows that male youth who resided in communities with high percentage of men with secondary and higher education were more likely to use condoms at last sex in 2003 (OR – 5.48; CI – 1.71-17.50), 2008 (OR – 5.07; CI – 2.26-11.34) and 2013 (OR – 2.60; CI – 1.16-5.83). On the other hand, male youth residing in communities with a higher percentage of men belonging to the poor wealth quintile had lower odds of using condoms at last sex in 2003 (OR – 0.66; CI – 0.46-0.95), 2008 (OR – 0.57; CI – 0.46-0.71) and 2013 (OR – 0.58; CI – 0.47-0.72). Male youth living in ethnic diverse communities were significantly more likely to use condoms at last sex in 2003 (OR – 1.66; CI – 1.12-3.13). Male youth residing in communities with a high percentage of men testing for HIV were significantly less likely to use condoms in 2008 (OR – 0.67; CI – 0.49-0.92) and 2013 (OR – 0.67; CI – 0.50-0.90).

Table 6.8b: Adjusted association between community variables only and condom use among females

Characteristics	2013	2008	2003
	CC use	CC use	CC use
Community education: % of women with at least a secondary education			
Low			
High	2.60 (1.16-5.83) ***	5.07 (2.26-11.34) ***	5.48 (1.71-17.50) ***
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.58 (0.47-0.72) ***	0.57 (0.46-0.71) ***	0.66 (0.46-0.95) *
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	0.88 (0.73-1.05)	0.97 (0.80-1.18)	1.66 (1.06-2.59) *
Community SSP: % of women engaging in Ssp			
Low			
High	1.03 (0.74-1.42)	0.94 (0.70-1.27)	0.78 (0.40-1.50)
Community HIV testing: % of women who tested for HIV			
Low			
High	0.67 (0.50-0.90) ***	0.67 (0.49-0.92) *	0.54 (0.29-1.00)
Community mass media exposure			
Low			
High	1.11 (0.70-1.78)	1.25 (1.01-1.54)	1.15 (0.61-2.16)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

The full model which show the adjusted association between selected characteristics, community characteristics and protective sexual behaviours have been presented in the tables below:

6.3 Abstinence among youth in Nigeria

The full model showing the association between characteristics and abstinence among youth in selected sites show that being an older youth aged 18-24 (OR – 0.21; CI – 0.12-0.36), residing in a rural area (OR – 0.58; CI – 0.40-0.84) was significantly associated with lower odds of abstinence.

Higher education (OR – 2.76; CI – 1.15-6.61), high parental monitoring (OR – 2.31; CI – 1.41-3.43) among the youth was significantly associated with higher

odds of abstinence among the youth. Living with neither parent (OR – 0.40; CI – 0.25-0.65) and discussing sex related matters with mother (OR – 0.60; CI – 0.44-0.82) was associated with lower odds of abstaining. Youth who had gotten drunk in the last 30 days (OR – 0.28; CI – 0.20-0.39) had significantly lower odds of abstaining compared to their counterparts who had not.

At the community level, social capital was the only significant variable associated with abstinence among youth. Youth from communities with low levels of social capital (OR – 0.53; CI – 0.40-0.70) had lower odds of abstaining from sex compared to their counterparts that reported to be living in communities with high social capital.

Table 6.9: Adjusted association between individual, household and neighbourhood characteristics and abstinence among youth in Nigeria

Characteristics	Edo	Enugu	Kano	Osun	Total
Sex					
Female					
Male	1.87 (0.97-3.64)	0.95 (0.55-1.64)	2.09 (0.83-5.26)	1.03 (0.45-2.33)	1.22 (0.90-1.65)
Age					
15-17					
18-24	0.06 (0.02-0.19) ***	0.66 (0.25-1.75)	0.79 (0.20-3.05)	0.26 (0.07-0.93) *	0.21 (0.12-0.36) ***
Place of residence					
Urban					
Sub-urban	0.22 (0.09-0.52) **	0.46 (0.2--0.97) *	1.14 (0.41-3.16)	0.57 (0.23-1.40)	0.52 (0.36-0.73) ***
Rural	0.47 (0.18-1.26)	0.35 (0.17-0.72) ***	0.49 (0.18-1.34)	0.85 (0.34-2.08)	0.58 (0.40-0.84) ***
Religion					
Catholic					
Other Christian	0.62 (0.30-1.29)	1.19 (0.50-2.84)	13.09 (0.53-323.56)	1.67 (0.19-14.63)	1.06 (0.67-1.68)
Muslim	1.51 (0.24-9.53)	0.81 (0.02-25.91)	1.76 (0.11-27.08)	7.23 (0.31-168.19)	1.51 (0.58-3.89)
Other	0.90 (0.09-8.93)	10.39 (0.69-154.75)	na	na	1.25 (0.29-5.37)
Importance of religion					
Important					
Not important	1.20 (0.41-3.52)	0.59 (0.06-5.68)	0.01 (0.00-0.65) **	0.62 (0.05-7.63)	0.85 (0.42-1.72)
Very important	1.07 (0.55-2.07)	0.93 (0.52-1.66)	2.19 (0.83-5.81)	2.02 (0.78-5.19)	1.18 (0.87-1.67)
Religion_Head household					
Catholic					
Other Christian	0.39 (0.18-0.86) *	0.64 (0.27-1.53)	0.59 (0.04-8.81)	1.34 (0.15-11.80)	0.68 (0.43-1.09)
Muslim	1.37 (0.24-7.63)	0.97 (0.05-16.33)	4.74 (0.43-51.91)	0.11 (0.01-2.43)	0.95 (0.37-2.44)
Other	0.32 (0.024-4.21)	na	na	na	0.55 (0.11-2.78)
Educational attainment					
No education					
Primary	1.56 (0.41-6.00)	3.86 (0.30-48.62)	na	na	2.07 (0.82-5.19)
Secondary	3.25 (0.96-10.98)	11.94 (1.24-114.29) *	na	na	4.31 (1.87-9.95) ***
Higher	2.45 (0.69-8.70)	6.38 (0.65-62.64)	1.02 (0.49-2.14)	0.92 (0.33-2.52)	2.76 (1.15-6.61) *
Ever work for pay					
No					
Yes	1.69 (0.87-3.30)	0.63 (0.35-1.13)	1.65 (0.53-5.11)	0.55 (0.25-1.24)	0.92 (0.67-1.26)
Father alive					
No					
Yes	0.68 (0.22-2.07)	0.82 (0.34-1.94)	0.68 (0.20-2.28)	0.81 (0.17-3.79)	0.65 (0.40-1.06)
Mother alive					
No					
Yes	0.76 (0.26-2.26)	1.43 (0.44-4.64)	0.05 (0.01-0.44) ***	9.05 (1.06-77.25) *	0.88 (0.51-1.50)
Family structure					

Living with both parents					
Mother alone	1.18 (0.36-3.84)	0.59 (0.25-1.40)	0.30 (0.08-1.08)	0.36 (0.11-1.18)	0.51 (0.31-0.82) ***
Father alone	0.44 (0.12-1.54)	0.64 (0.16-2.56)	0.24 (0.06-0.91) *	3.69 (0.35-38.29)	0.47 (0.26-0.85) *
Neither parent	0.72 (0.20-2.52)	0.47 (0.20-1.11)	0.10 (0.03-0.31) ***	1.02 (0.20-5.11)	0.40 (0.25-0.65) ***
Parental monitoring					
Low					
medium	1.76 (0.96-3.23)	1.99 (1.06-3.74) *	1.51 (0.57-4.01)	1.17 (0.48-2.82)	1.79 (1.32-2.44) ***
High	2.68 (0.71-10.13)	1.61 (0.77-3.38)	2.54 (0.84-7.62)	2.49 (0.20-1.17)	2.31 (1.4-3.74) ***
Discuss sex related matters with mother					
No					
Yes	0.61 (0.32-1.14)	0.63 (0.35-1.14)	0.87 (0.35-2.18)	0.49 (0.20-1.17)	0.60 (0.44-0.82) ***
Discuss sex related matters with father					
No					
Yes	1.12 (0.55-2.25)	1.01 (0.51-1.97)	0.42 (0.16-1.06)	1.09 (0.34-3.47)	0.93 (0.65-1.32)
Gotten drunk in last 30 days					
No					
Yes	0.30 (0.14-0.63) ***	0.38 (0.21-0.68) **	0.09 (0.01-0.53) ***	0.22 (0.09-0.53) ***	0.28 (0.20-0.39) ***
Self-efficacy					
Low					
High	4.81 (2.49-9.30) ***	7.00 (3.97-12.32) ***	3.83 (1.57-9.34) ***	4.65 (2.03-10.64) ***	4.18 (3.13-5.57) ***
Ever attend single sex school					
No					
Yes	0.41 (0.20-0.84) *	1.31 (0.75-2.27)	1.18 (0.47-2.93)	0.86 (0.33-2.20)	0.84 (0.61-1.14)
School management type					
Government					
Private	0.78 (0.42-1.47)	0.58 (0.34-1.01)	1.20 (0.49-2.94)	1.40 (0.66-2.99)	0.77 (0.58-1.03)
School managed by religious group					
No					
Yes	0.94 (0.34-2.59)	1.21 (0.59-2.47)	0.73 (0.27-1.94)	1.63 (0.46-5.76)	1.16 (0.79-1.71)
Have role models					
No					
Yes	0.54 (0.29-1.01)	2.92 (1.65-5.17) ***	1.12 (0.50-2.49)	0.74 (0.35-1.58)	1.22 (0.92-1.64)
Social capital					
High					
Low	0.36 (0.19-0.67) **	0.94 (0.55-1.59)	0.59 (0.26-1.35)	0.45 (0.18-1.07)	0.53 (0.40-0.70) ***
Availability of recreational resources					
No					
Yes	0.44 (0.22-0.84) *	0.39 (0.22-0.69) ***	1.01 (0.39-2.63)	0.72 (0.30-1.71)	0.75 (0.56-1.01)

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.4 Determinants of single sexual partnerships among females

Demographic characteristics

Age remained significantly associated with SSP among female youth. Females aged 18-24 had lower odds of having SSP in 2003 (OR – 0.33; CI – 0.24-0.44), 2008 (OR – 0.23; CI – 0.20-0.27) and 2013 (OR – 0.17; CI – 0.15-0.20) compared to their counterparts aged 15-17. By place of residence, youth in rural areas had lower odds of engaging in SSP in 2008 (OR – 0.74; CI – 0.59-0.94) and 2013 (OR – 0.64; CI – 0.53-0.78). Muslim youth (OR – 1.81; CI – 1.39-2.36) were about two times likely to engage in SSP compared to counterparts who were Catholics in 2013. By ethnicity, being Hausa was significantly associated with higher odds of SSP in 2003 (OR – 7.24; CI – 1.75-29.88), 2008 (OR – 2.14; CI – 1.09-4.22) and 2013 (OR – 6.92; CI – 3.59-13.34). Similar associations were evident for Fulani youth (OR – 24.54; CI – 3.26-84.37) for year 2013 while Ijaw females were less likely to engage in SSP in 2008 (OR – 0.46; CI – 0.27-0.76) and 2013 (OR – 0.51; CI – 0.34-0.77). Females in North Central, North East and North West had significantly higher odds of engaging in SSP in 2008 and 2013 compared to their counterparts in the South West region.

Socio-economic characteristics

Females with higher education in 2008 (OR – 0.35; CI – 0.20-0.59) and 2013 (OR – 0.50; CI – 0.30-0.82) had significantly lower odds of engaging in SSP compared to their counterparts with no education. Youth who were working in the years 2003 (OR – 0.53; CI – 0.39-0.72), 2008 (OR – 0.50; CI – 0.43-0.72) and 2013 (OR – 0.53; CI – 0.46-0.61) also had significantly lower odds of engaging in SSP compared to their counterparts who were not working.

Other characteristics

Females who were living in households headed by females had lower odds of engaging in SSP in 2003 (OR – 0.70; CI – 0.53-0.93), 2008 (OR – 0.72; CI – 0.62-

0.83) and 2013 (OR – 0.81; CI – 0.71-0.92) compared to their counterparts in male headed households. Females with HIV knowledge had lower odds of engaging in SSP in 2008 (OR – 0.46; CI – 0.29-0.72) and 2013 (OR – 0.50; CI – 0.34-0.75) compared to counterparts with low HIV knowledge.

Community characteristics

The unadjusted association between community characteristics and SSP shows that female youth who resided in communities with a high percentage of women with secondary and higher education had lower odds of engaging in SSP in 2008 (OR – 0.38; CI – 0.22-0.67). Female youth who resided in communities with a high percentage of women testing for HIV were significantly more likely to engage in SSP in 2013 (OR – 1.33; CI – 1.19-1.49). Female youth residing in communities with high exposure to mass media were less likely to engage in SSP in 2003 (OR – 1.40; CI – 1.08-1.81).

Table 6.10a: Adjusted association between individual, household and neighbourhood characteristics and SSP among females in Nigeria

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.17 (0.15-0.20) ***	0.23 (0.20-0.27) ***	0.33 (0.24-0.44) ***
Place of residence			
Urban			
Rural	0.64 (0.53-0.78) ***	0.74 (0.59-0.94) *	1.30 (0.83-1.82)
Religion			
Catholic			
Other Christian	0.87 (0.72-1.06)	0.99 (0.81-1.22)	1.01 (0.68-1.50)
Muslim	1.81 (1.39-2.36) ***	1.24 (0.93-1.65)	1.10 (0.74-1.63)
Other	1.21 (0.59-2.50)	1.46 (0.70-3.01)	1.16 (0.68-1.98)
Ethnicity			
Yoruba			
Igbo	1.07 (0.73-1.55)	1.14 (0.77-1.70)	1.44 (0.71-2.92)
Hausa	6.92 (3.59-13.34) ***	2.14 (1.09-4.22) *	7.24 (1.75-29.88) ***
Fulani	24.54 (3.26-84.37) ***	3.71 (1.01-13.55)	3.12 (0.31-30.63)
Ijaws	0.51 (0.34-0.77) ***	0.46 (0.27-0.76) ***	0.72 (0.21-2.41)
Others	0.81 (0.61-1.08)	0.88 (0.64-1.22)	1.10 (0.63-1.91)
Region			

South West			
North Central	2.29 (1.72-3.04) ***	1.73 (1.20-2.49) ***	0.67 (0.36-1.21)
North East	2.39 (1.65-3.47) ***	1.59 (1.00-2.52) *	1.11 (0.51-2.41)
North West	4.38 (2.86-6.71) ***	4.65 (2.42-8.92) ***	1.82 (0.64-5.20)
South East	1.92 (1.45-2.54) ***	1.58 (0.99-2.50)	0.67 (0.31-1.45)
South South	0.70 (0.54-0.90) ***	0.51 (0.34-0.75)	0.22 (0.11-0.42)
Educational attainment			
No education			
Primary	0.83 (0.52-1.32)	0.83 (0.52-1.33)	1.14 (0.55-2.33)
Secondary	0.82 (0.52-1.30)	0.74 (0.46-1.17)	0.77 (0.37-1.59)
Higher	0.50 (0.30-0.82) ***	0.35 (0.20-0.59) ***	0.40 (0.17-0.94)
Work status			
No			
Yes	0.53 (0.46-0.61) ***	0.50 (0.43-0.58) ***	0.53 (0.39-0.72) ***
Wealth status			
Poor			
Middle	1.05 (0.83-1.33)	1.09 (0.86-1.38)	1.20 (0.77-1.87)
Rich	1.22 (0.94-1.58)	1.05 (0.80-1.38)	1.05 (0.62-1.76)
Sex household head			
Male			
Female	0.81 (0.71-0.92) ***	0.72 (0.62-0.83) ***	0.70 (0.53-0.93) *
Exposure to mass media			
No			
Yes	0.77 (0.67-0.88) ***	0.70 (0.60-0.81) ***	0.52 (0.39-0.67) ***
HIV Knowledge			
No			
Yes	0.50 (0.34-0.75) ***	0.46 (0.29-0.72) ***	0.36 (0.09-1.44)
Community education: % of women with at least a secondary education			
Low			
High	0.83 (0.47-1.46)	0.38 (0.22-0.67) ***	1.16 (0.53-2.52)
Community poverty: % of women in the poor wealth quintile			
Low			
High	1.07 (0.94-1.21)	0.95 (0.80-1.13)	1.13 (0.84-1.53)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.10 (0.97-1.24)	1.00 (0.87-1.15)	na
Community HIV testing: % of women who tested for HIV			
Low			
High	1.33 (1.19-1.49) ***	1.20 (0.97-1.47)	1.13 (0.93-1.37)
Community mass media exposure			
Low			
High	1.11 (0.96-1.29)	1.09 (0.93-1.27)	1.40 (1.08-1.81) **
Variance (SE)	**0.09 (0.01)**	**0.13 (0.01)**	**0.13 (0.03) ***
AIC	**7291**	**6406**	**1843**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.5 Determinants of single sexual partnerships among males

Demographic characteristics

Males aged 18-24 had significantly lower odds of having SSP in 2003 (OR – 0.12; CI – 0.06-0.23), 2008 (OR – 0.18; CI – 0.15-0.23) and 2013 (OR – 0.10; CI – 0.08-0.13) compared to their counterparts aged 15-17. By place of residence, male youth in rural areas had lower odds of engaging in SSP in 2013 (OR – 0.72; CI – 0.57-0.91). Males who were other Christians had higher odds of engaging in SSP compared to their Catholic counterparts but this association was only significant in 2003 (OR – 1.98; CI – 1.07-3.64). Muslim males also had higher odds of engaging in SSP compared to their Catholic counterparts and association was significant in 2008 (OR – 1.91; CI – 1.35-2.70) and 2013 (OR – 2.08; CI – 1.50-2.88).

By ethnicity, being Hausa was significantly associated with higher odds of SSP in 2003 (OR – 3.47; CI – 1.01-11.91), 2008 (OR – 6.62; CI – 3.25-13.48) and 2013 (OR – 5.11; CI – 2.82-9.26). Similar associations were evident for Fulani youth (OR – 3.87; CI – 1.85-8.08) for year 2013 and Igbo youth in 2003 (OR – 3.80; CI – 1.20-12.05) and 2013 (OR – 1.90; CI – 1.18-3.05) while Ijaw males were less likely to engage in SSP in 2008 (OR – 0.43; CI – 0.22-0.84). Males in the North West had higher odds of engaging in SSP for the three survey years compared to counterparts in South West region.

Socio-economic characteristics

Males with higher education in 2003 (OR – 0.06; CI – 0.01-0.38), 2008 (OR – 0.29; CI – 0.16-0.52) and 2013 (OR – 0.26; CI – 0.14-0.47) had significantly lower odds of engaging in SSP. This association was similar for youth who were working in the years 2003 (OR – 0.41; CI – 0.24-0.69), 2008 (OR – 0.53; CI – 0.43-0.64) and 2013 (OR – 0.39; CI – 0.33-0.46).

Males who were exposed to mass media in 2003 (OR – 0.34; CI – 0.21-0.54), 2008 (OR – 0.63; CI – 0.52-0.76) and 2013 (OR – 0.63; CI – 0.54-0.75) had significantly lower odds of engaging in SSP compared to their counterparts who were not exposed to mass media. Similarly, HIV knowledge among male youth was associated with lower odds of SSP but only significant in 2013 (OR – 0.18; CI – 0.07-0.42).

Community characteristics

The adjusted association between community characteristics and SSP shows that male youth who resided in communities with a high percentage of men with secondary and higher education had lower odds of engaging in SSP in 2008 (OR – 0.42; CI – 0.22-0.67). Males (OR – 0.75; CI – 0.60-0.93) living in communities with high percentage of men in the poor quintile had lower odds of having SSP in 2008. Males who resided in communities with a high percentage of men testing for HIV were significantly more likely to engage in SSP in 2013 (OR – 1.32; CI – 1.06-1.61).

Table 6.10b: Adjusted association between individual, household and neighbourhood characteristics and SSP among males in Nigeria

Characteristics	2013	2008	2003
	SSP	SSP	SSP
Age			
15-17			
18-24	0.10 (0.08-0.13) ***	0.18 (0.15-0.23) ***	0.12 (0.06-0.23) ***
Place of residence			
Urban			
Rural	0.72 (0.57-0.91) ***	0.82 (0.63-1.07)	0.96 (0.54-1.72)
Religion			
Catholic			
Other Christian	1.22 (0.95-1.57)	1.04 (0.79-1.36)	1.98 (1.07-3.64) *
Muslim	2.08 (1.50-2.88) ***	1.91 (1.35-2.70) ***	2.35 (1.02-5.37)
Other	1.23 (0.52-2.91)	1.17 (0.53-2.56)	0.61 (0.07-5.22)
Ethnicity			
Yoruba			
Igbo	1.90 (1.18-3.05) **	1.41 (0.83-2.39)	3.80 (1.20-12.05) *
Hausa	5.11 (2.82-9.26) ***	6.62 (3.25-13.48) ***	3.47 (1.01-11.91) *
Fulani	3.87 (1.85-8.08) ***	1.43 (0.71-2.84)	2.15 (0.34-13.38)
Ijaws	0.62 (0.35-1.07)	0.43 (0.22-0.84) *	2.27 (0.38-13.28)
Others	1.27 (0.88-1.85)	0.89 (0.59-1.34)	3.25 (1.27-8.34) *

Region			
South West			
North Central	1.07 (0.73-1.57)	2.59 (1.67-4.00) ***	0.79 (0.33-1.90)
North East	1.87 (1.18-2.96) ***	3.29 (1.3-5.61) ***	1.40 (0.45-4.33)
North West	4.84 (2.63-8.90) ***	8.31 (4.22-16.37) ***	4.00 (1.15-13.88) **
South East	0.82 (0.49-1.37)	1.83 (1.00-3.32)	0.68 (0.20-2.31)
South South	0.64 (0.43-0.95) *	1.37 (0.85-2.21)	0.73 (0.28-1.90)
Educational attainment			
No education			
Primary	0.64 (0.38-1.08)	0.81 (0.50-1.33)	0.16 (0.03-0.69)
Secondary	0.63 (0.37-1.07)	0.66 (0.40-1.08)	0.10 (0.22-0.51) **
Higher	0.26 (0.14-0.47) ***	0.29 (0.16-0.52) ***	0.06 (0.01-0.38) **
Work status			
No			
Yes	0.39 (0.33-0.46) ***	0.53 (0.43-0.64) ***	0.41 (0.24-0.69) ***
Wealth status			
Poor			
Middle	0.95 (0.71-1.27)	0.93 (0.68-1.25)	1.41 (0.53-3.69)
Rich	1.03 (0.74-1.44)	0.88 (0.62-1.26)	0.88 (0.31-2.46)
Sex household head			
Male			
Female	0.99 (0.81-1.20)	1.09 (0.86-1.37)	0.60 (0.35-1.04)
Exposure to mass media			
No			
Yes	0.63 (0.54-0.75) ***	0.63 (0.52-0.76) ***	0.34 (0.21-0.54) ***
HIV Knowledge			
No			
Yes	0.18 (0.07-0.42) ***	0.80 (0.35-1.84)	0.21 (0.01-3.00)
Community education: % of men with at least a secondary education			
Low			
High	1.09 (0.61-1.95)	0.42 (0.23-0.75) ***	1.06 (0.38-2.97)
Community poverty: % of men in the poor wealth quintile			
Low			
High	1.14 (0.95-1.38)	0.75 (0.60-0.93) **	0.81 (0.46-1.47)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	1.18 (1.02-1.36)	1.12 (0.96-1.31)	1.34 (0.90-2.00)
Community HIV testing: % of men who tested for HIV			
Low			
High	1.32 (1.06-1.61) *	0.97 (0.77-1.21)	1.24 (0.75-2.04)
Community mass media exposure			
Low			
High	1.28 (0.96-1.70)	0.86 (0.74-1.01)	0.94 (0.56-1.57)
Variance (SE)	**0.13 (0.02) ***	**0.8 (0.02) ***	**0.19 (0.08)**
AIC	**4622**	**4092**	**789**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

SE: standard error, AIC: Akaike information criterion, *p<0.05

6.6 Determinants of HIV testing among female youth in Nigeria

Demographic characteristics

The association between demographic characteristics and HIV testing among females in tables 6.11a show that being aged 18-24 was significantly associated with higher odds of HIV testing in 2003 (OR – 5.64; CI – 2.37-13.42), 2008 (OR – 2.46; CI – 1.90-3.18) and 2013 (OR – 3.12; CI – 2.55-3.64). Females who were Muslims (OR – 0.41; CI – 0.30-0.56) and other Christians (OR – 0.75; CI – 0.61-0.93) had significantly lower odds of testing for HIV in 2013 compared to Catholic counterparts. Igbo (OR – 1.97; CI – 1.30-3.00) youth had higher odds of testing for HIV in 2013 compared to their Yoruba counterparts.

Socio-economic characteristics

Being a female with higher education in 2008 (OR – 18.41; CI – 4.41-81.79) and 2013 (OR – 14.75; CI – 5.95-36.53) was significantly associated with higher odds of HIV testing. By work status, females who were working were about two times more likely to test for HIV compared to their counterparts who were not working but this association was only significant in 2013 (OR – 1.77; CI – 1.51-2.07). Being a female from the rich quintile was associated with higher odds of HIV testing but this association was only significant in 2013 (OR – 1.65; CI – 1.19-2.29).

Female youth living in households headed by females (OR – 1.44; CI – 1.23-1.68) had higher odds of testing for HIV compared to counterparts living with households headed by males in 2013. Similarly, female youth who were exposed to mass media had higher odds of testing for HIV in the three survey years but association was only significant in 2008 (OR – 2.16; CI – 1.73-2.69) and 2013 (OR – 1.58; CI – 1.35-1.85). HIV knowledge was significantly associated with HIV testing among females in 2013 (OR – 2.76; CI – 1.51-5.04).

Table 6.11a: Adjusted association between individual, household and neighbourhood characteristics and HIV testing among females in Nigeria

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	3.12 (2.55-3.64) ***	2.46 (1.90-3.18) ***	5.64 (2.37-13.42) ***
Place of residence			
Urban			
Rural	1.05 (0.85-1.31)	0.91 (0.66-1.24)	0.76 (0.43-1.35)
Religion			
Catholic			
Other Christian	0.75 (0.61-0.93) **	0.85 (0.65-1.12)	0.69 (0.35-1.38)
Muslim	0.41 (0.30-0.56) ***	0.56 (0.35-0.88) *	0.78 (0.40-1.52)
Other	0.15 (0.03-0.68) *	1.13 (0.42-2.97)	0.71 (0.25-1.95)
Ethnicity			
Yoruba			
Igbo	1.97 (1.30-3.00) ***	1.48 (0.87-2.53)	0.54 (0.12-2.47)
Hausa	0.29 (0.14-0.62) ***	0.53 (0.19-1.51)	0.76 (0.05-9.72)
Fulani	0.63 (0.24-1.65)	na	na
Ijaws	1.60 (0.94-2.69)	0.98 (0.46-2.08)	1.97 (0.36-10.56)
Others	1.55 (1.11-2.17) *	1.71 (1.08-2.70)	1.54 (0.56-4.21)
Region			
South West			
North Central	1.04 (0.72-1.50)	1.51 (0.90-2.54)	1.43 (0.50-4.02)
North East	1.46 (0.91-2.35)	1.12 (0.55-2.26)	0.34 (0.03-3.24)
North West	1.02 (0.63-1.67)	1.52 (0.65-3.54)	0.96 (0.14-6.30)
South East	0.93 (0.58-1.48)	2.27 (1.23-4.18) **	7.42 (1.65-33.20)
South South	0.91 (0.62-1.33)	1.47 (0.85-2.54)	2.05 (0.72-5.86)
Educational attainment			
No education			
Primary	2.50 (1.01-6.18) *	2.07 (0.46-9.34)	0.59 (0.05-5.92)
Secondary	3.88 (1.60-9.41) ***	3.70 (0.85-16.14)	1.59 (0.17-14.13)
Higher	14.75 (5.95-36.53) ***	18.41 (4.14-81.79) ***	3.11 (0.33-29.24)
Work status			
No			
Yes	1.77 (1.51-2.07) ***	1.18 (0.94-1.47)	1.54 (0.90-2.62)
Wealth status			
Poor			
Middle	1.91 (0.88-1.60)	1.34 (0.87-2.07)	0.84 (0.32-2.21)
Rich	1.65 (1.19-2.29) ***	1.52 (0.95-2.41)	1.52 (0.49-4.68)
Sex household head			
Male			
Female	1.44 (1.23-1.68) ***	0.95 (0.76-1.18)	0.91 (0.54-1.52)
Exposure to mass media			
No			
Yes	1.58 (1.35-1.85) ***	2.16 (1.73-2.69) ***	1.10 (0.67-1.81)
HIV Knowledge			
No			
Yes	2.76 (1.51-5.04) ***	1.94 (0.94-4.02)	0.73 (0.08-5.99)

Community education: % of women with at least a secondary education			
Low			
High	1.52 (0.73-3.12)	1.19 (0.44-3.15)	0.67 (0.13-3.34)
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.99 (0.85-1.15)	0.95 (0.74-1.22)	1.27 (0.73-2.23)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	0.80 (0.69-0.92) **	1.01 (0.0-1.27)	na
Community SSP: % of women engaging in Ssp			
Low			
High	0.67 (0.58-0.76) ***	0.69 (0.57-0.84) ***	0.62 (0.43-0.89) *
Community mass media exposure			
Low			
High	0.92 (0.78-1.08)	1.23 (0.99-1.53)	1.52 (1.00-2.32) *
Variance (SE)	**0.11 (0.01) ***	**0.17 (0.02)**	**0.01 (0.06)**
AIC	**5443**	**3235**	**602**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.7 Determinants of HIV testing among male youth in Nigeria

Demographic characteristics

The association between demographic characteristics and HIV testing among males in the full model (table 6.11b) show that being aged 18-24 was significantly associated with higher odds of HIV testing in 2008 (OR – 2.15; CI – 1.49-3.08) and 2013 (OR – 2.77; CI – 2.09-3.66). Being a male in the rural area was associated with lower odds of HIV testing in 2013 (OR – 0.73; CI – 0.53-0.99). Males who were Muslims and other Christians had significantly lower odds of testing for HIV in 2008 and 2013 compared to Catholic counterparts. Males from the North East (OR – 2.26; CI – 1.20-4.27) had higher odds of testing for HIV compared to their counterparts in the South West region in 2013.

Socio-economic characteristics

Males who had attained higher education in 2003 (OR – 18.69; CI – 1.68-21.68) 2008 (OR – 7.97; CI – 2.73-23.21) and 2013 (OR – 13.49; CI – 5.65-32.19) had significantly higher odds of testing for HIV. By work status, males who were working were about two times more likely to test for HIV compared to their counterparts who were not working but this association was only significant in 2008 (OR – 1.58; CI – 1.20-2.08) and 2013 (OR – 1.67; CI – 1.35-2.07). Male youth who belonged to the rich quintile had significantly higher odds of testing for HIV in 2013.

Male youth who were exposed to mass media had higher odds of testing for HIV in 2003 (OR – 2.47; CI – 1.27-4.81), 2008 (OR – 1.83; CI – 1.36-2.46) and 2013 (OR – 2.00; CI – 1.60-2.51). HIV knowledge was significantly associated with HIV testing among females in 2013 (OR – 4.34; CI – 1.02-18.36).

Community characteristics

The adjusted association between community characteristics and HIV testing shows that male youth who resided in highly ethnic diverse communities had lower odds of testing for HIV in 2003 (OR – 0.44; CI – 0.20-0.97) and 2013 (OR – 0.68; CI – 0.56-0.83). This association was similar for males living in communities with a high proportion of males engaging in SSP in 2003 (OR – 0.33; CI – 0.17-0.63) and 2013 (OR – 0.66; CI – 0.50-0.87).

Table 6.11b: Adjusted association between individual, household and neighbourhood characteristics and HIV testing among males in Nigeria

Characteristics	2013	2008	2003
	HIV test	HIV test	HIV test
Age			
15-17			
18-24	2.77 (2.09-3.66) ***	2.15 (1.49-3.08) ***	2.07 (0.85-5.02)
Place of residence			
Urban			
Rural	0.73 (0.53-0.99) *	0.81 (0.58-1.13)	0.71 (0.35-1.46)
Religion			
Catholic			
Other Christian	0.69 (0.51-0.95) *	0.61 (0.43-0.87) ***	0.86 (0.38-1.95)
Muslim	0.44 (0.29-0.66) ***	0.49 (0.30-0.80) ***	1.08 (0.37-3.13)
Other	0.57 (0.17-1.92)	0.95 (0.34-2.65)	na
Ethnicity			
Yoruba			
Igbo	0.98 (0.53-1.81)	0.75 (0.34-1.64)	5.93 (1.39-25.24) *
Hausa	1.11 (0.54-2.29)	0.99 (0.39-2.48)	0.99 (0.20-4.97)
Fulani	1.45 (0.60-3.52)	2.21 (0.68-7.17)	2.24 (0.27-18.16)
Ijaws	0.67 (0.28-1.59)	1.69 (0.67-4.25)	3.73 (0.28-49.60)
Others	0.94 (0.56-1.58)	1.64 (0.91-2.96)	0.50 (0.11-2.30)
Region			
South West			
North Central	1.24 (0.72-2.15)	0.69 (0.37-1.28)	1.97 (0.55-7.09)
North East	2.26 (1.20-4.27) *	0.27 (0.12-0.64)	2.12 (0.45-9.96)
North West	0.63 (0.29-1.39)	0.50 (0.20-1.23)	1.06 (0.20-5.63)
South East	1.48 (0.76-2.90)	1.78 (0.77-4.13)	0.50 (0.10-2.32)
South South	0.98 (0.55-1.73)	0.82 (0.42-1.59)	0.85 (0.20-3.62)
Educational attainment			
No education			
Primary	1.57 (0.67-3.66)	1.30 (0.45-3.74)	2.40 (0.26-21.54)
Secondary	2.53 (1.10-5.78) *	1.70 (0.61-4.74)	3.69 (0.37-36.55)
Higher	13.49 (5.65-32.19) ***	7.97 (2.73-23.21) ***	18.89 (1.68-21.68) ***
Work status			
No			
Yes	1.67 (1.35-2.07) ***	1.58 (1.20-2.08) ***	1.28 (0.65-2.50)
Wealth status			
Poor			
Middle	1.41 (0.97-2.05)	1.15 (0.70-1.88)	1.96 (0.50-7.61)
Rich	1.86 (1.22-2.85)***	1.18 (0.67-2.06)	3.80 (0.93-15.48)
Sex household head			
Male			
Female	1.16 (0.90-1.50)	0.90 (0.64-1.27)	0.65 (0.28-1.53)
Exposure to mass media			

No			
Yes	2.00 (1.60-2.51) ***	1.83 (1.36-2.46) ***	2.47 (1.27-4.81) ***
HIV Knowledge			
No			
Yes	4.34 (1.02-18.36) *	1.58 (0.35-6.94)	na
Community education: % of men with at least a secondary education			
Low			
High	1.91 (0.85-4.29)	1.36 (0.55-3.34)	0.89 (0.20-3.91)
Community poverty: % of men in the poor wealth quintile			
Low			
High	1.25 (0.98-1.58)	0.94 (0.69-1.28)	1.71 (0.84-3.49)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	0.68 (0.56-0.83) ***	0.84 (0.68-1.04)	0.44 (0.20-0.97) *
Community SSP: % of men engaging in Ssp			
Low			
High	0.66 (0.50-0.87) ***	0.81 (0.65-1.00)	0.33 (0.17-0.63) ***
Community mass media exposure			
Low			
High	1.21 (0.88-1.67)	1.11 (0.91-1.37)	0.64 (0.33-1.24)
Variance (SE)	**0.19 (0.30) ***	**0.12 (0.04) ***	**Na**
AIC	**3150**	**2023**	**na**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

SE: standard error, AIC: Akaike information criterion, *p<0.05

6.8 Determinants of condom use at last sex among female youth in Nigeria

Demographic characteristics

In the full model presented in table 6.12a, females aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 in 2008 (OR – 1.89; CI – 1.38-2.57) and 2013 (OR – 1.45; CI – 1.12-1.87). Living in the rural area was associated with lower odds of condom use at last sex among females in 2008 (OR – 0.66; CI – 0.48-0.90). Females in the North East region

had reduced odds of using condoms in all survey years but association was only significant in 2003 (OR – 0.13; CI – 0.02-0.72) and 2013 (OR – 0.55; CI – 0.31-0.98). Females in the South East had lower odds of using condoms at last sex in 2003 (OR – 0.25; CI – 0.10-0.60) but were seen to have higher odds of condom use in 2013 (OR – 1.66; CI – 1.16-2.37).

Socio-economic characteristics

Higher education was significantly associated with condom use at last sex among females compared to counterparts with no education in 2008 (OR – 11.76; CI – 1.45-94.90) and 2013 (OR – 9.91; CI – 2.17-45.10).

Females who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media in 2003 (OR – 2.34; CI – 1.42-3.85), 2008 (OR – 1.68; CI – 1.31-2.14) and 2013 (OR – 1.60; CI – 1.31-1.94).

Community characteristics

There was no significant association between community characteristics and condom use at last sex among females in the full model.

Table 6.12a: Adjusted association between individual, household and neighbourhood characteristics and condom use among females in Nigeria

Characteristics	2013	2008	2003
	Ccuse	Ccuse	Ccuse
Age			
15-17			
18-24	1.45 (1.12-1.87) ***	1.89 (1.38-2.57) ***	1.12 (0.61-2.04)
Place of residence			
Urban			
Rural	0.85 (0.67-1.08)	0.66 (0.48-0.90) ***	0.89 (0.47-1.69)
Religion			
Catholic			
Other Christian	0.81 (0.61-1.07)	0.77 (0.56-1.07)	1.08 (0.53-2.23)
Muslim	0.83 (0.55-1.25)	0.63 (0.39-1.01)	0.92 (0.45-1.87)
Other	0.61 (0.18-2.00)	1.14 (0.33-3.84)	0.88 (0.35-2.21)
Ethnicity			
Yoruba			
Igbo	1.35 (0.78-2.33)	1.62 (0.86-3.02)	1.49 (0.43-5.12)
Hausa	0.80 (0.19-3.31)	2.22 (0.67-7.35)	4.27 (0.15-21.09)
Fulani	na	2.24 (0.15-31.80)	na
Ijaws	1.42 (0.82-2.44)	0.49 (0.23-1.00)	0.43 (0.06-3.01)
Others	1.33 (0.87-2.02)	1.38 (0.83-2.27)	0.88 (0.35-2.20)
Region			
South West			
North Central	1.13 (0.78-1.65)	0.88 (0.52-1.51)	0.45 (0.20-1.01)
North East	0.55 (0.31-0.98) *	0.55 (0.26-1.18)	0.13 (0.02-0.72) *
North West	1.17 (0.60-2.26)	0.57 (0.18-1.72)	0.33 (0.05-1.88)
South East	1.66 (1.16-2.37) ***	0.78 (0.38-1.57)	0.25 (0.10-0.60) ***
South South	0.91 (0.68-1.23)	1.05 (0.83-2.27)	0.23 (0.10-0.52) ***
Educational attainment			
No education			
Primary	3.85 (0.85-17.38)	5.28 (0.65-42.67)	0.78 (0.12-4.80)
Secondary	5.89 (1.32-26.14) *	8.63 (1.09-67.89)	1.65 (0.28-9.71)
Higher	9.91 (2.17-45.10) ***	11.76 (1.45-94.90) *	3.03 (0.45-20.34)
Work status			
No			
Yes	1.03 (0.85-1.26)	1.12 (0.89-1.42)	0.62 (0.35-1.08)
Wealth status			
Poor			
Middle	1.24 (0.84-1.85)	1.18 (0.76-1.81)	0.99 (0.40-2.44)
Rich	1.50 (0.98-2.30)	1.53 (0.96-2.44)	2.11 (0.77-5.72)
Sex household head			
Male			

Female	0.87 (0.72-1.06)	1.00 (0.80-1.26)	1.44 (0.87-2.39)
Exposure to mass media			
No			
Yes	1.60 (1.31-1.94) ***	1.68 (1.31-2.14) ***	2.34 (1.42-3.85) ***
HIV Knowledge			
No			
Yes	1.69 (0.79-3.61)	0.50 (0.21-1.20)	na
Community education: % of women with at least a secondary education			
Low			
High	1.91 (0.76-4.77)	2.07 (0.73-5.83)	0.67 (0.15-2.92)
Community poverty: % of women in the poor wealth quintile			
Low			
High	0.84 (0.70-0.99)	1.03 (0.81-1.32)	1.39 (0.81-2.36)
Ethnic diversity : % of women living in ethnic diverse communities			
Low			
High	1.02 (0.88-1.18)	1.09 (0.87-1.37)	na
Community SSP: % of women engaging in Ssp			
Low			
High	1.08 (0.90-1.30)	1.18 (0.95-1.46)	1.38 (0.87-2.18)
Community HIV testing: % of women who tested for HIV			
Low			
High	0.98 (0.85-1.14)	0.77 (0.58-1.02)	1.02 (0.74-1.41)
Community mass media exposure			
Low			
High	1.17 (0.97-1.41)	1.00 (0.81-1.24)	1.46 (0.96-2.21)
Variance (SE)	**0.04 (0.02)**	**0.01 (0.03)**	**0.10 (0.08)**
AIC	**2797**	**2304**	**564**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

6.9 Determinants of condom use at last sex among male youth in Nigeria

Demographic characteristics

The full model in table 6.12b show that males aged 18-24 had higher odds of using condoms at last sex compared to their counterparts aged 15-17 but association was only significant in 2008 (OR – 2.00; CI – 1.31-3.06). Living in the rural area was associated with lower odds of condom use at last sex among males in 2013 (OR – 0.68; CI – 0.48-0.96). Hausa female youth had higher odds of using condoms at last sex in 2013 (OR – 3.61; CI – 1.06-12.26) compared to their Yoruba counterparts. Males from the North Central region were three times more likely to use condom at last sex compared to their counterparts in the South West.

Socio-economic characteristics

Higher education was significantly associated with condom use at last sex among males compared to counterparts with no education in 2008 (OR – 5.61; CI – 1.56-20.23) and 2013 (OR – 5.07; CI – 1.65-15.54).

Males who were exposed to mass media had higher odds of using condoms at last sex compared to their counterparts with no exposure to mass media in 2008 (OR – 1.83; CI – 1.35-2.49) and 2013 (OR – 1.56; CI – 1.19-2.04).

Community characteristics

Males who were residing in communities with a high percentage of men in the poor wealth quintile had lower odds (OR – 0.72; CI – 0.54-0.95) of using condoms at last sex compared to the counterparts.

Table 6.12b: Adjusted association between individual, household and neighbourhood characteristics and condom use among males in Nigeria

Characteristics	2013	2008	2003
	Ccuse	Ccuse	Ccuse
Age			
15-17			
18-24	1.23 (0.79-1.92)	2.00 (1.31-3.06) ***	2.71 (0.83-8.81)
Place of residence			
Urban			
Rural	0.68 (0.48-0.96) *	0.79 (0.54-1.13)	0.60 (0.25-1.41)
Religion			
Catholic			
Other Christian	0.74 (0.50-1.10)	0.84 (0.56-1.26)	1.76 (0.76-4.07)
Muslim	0.81 (0.49-1.36)	0.68 (0.40-1.13)	1.81 (0.63-5.22)
Other	0.33 (0.08-1.28)	0.29 (0.08-1.05)	na
Ethnicity			
Yoruba			
Igbo	1.20 (0.52-2.75)	1.80 (0.75-4.31)	0.63 (0.11-3.51
Hausa	3.61 (1.06-12.26) *	1.46 (0.41-5.14)	0.14 (0.02-0.97)
Fulani	0.55 (0.11-2.73)	0.20 (0.03-1.14)	5.98 (0.24-148.09)
Ijaws	0.32 (0.14-0.73) **	0.30 (0.12-0.75) *	0.41 (0.04-4.18)
Others	0.78 (0.43-1.42)	0.81 (0.44-1.49)	0.50 (0.12-2.09)
Region			
South West			
North Central	2.93 (1.38-3.93) ***	0.71 (0.37-1.34)	1.00 (0.29-3.44)
North East	0.76 (0.36-1.62)	0.45 (0.20-1.01)	0.52 (0.10-2.55)
North West	0.42 (0.13-1.28)	0.53 (0.16-1.71)	2.37 (0.29-19.00)
South East	0.95 (0.40-2.23)	0.55 (0.20-1.45)	1.88 (0.30-11.54)
South South	1.69 (0.92-3.12)	0.85 (0.43-1.68)	1.09 (0.29-4.12)
Educational attainment			
No education			
Primary	1.08 (0.39-3.00)	1.66 (0.48-5.71)	na
Secondary	1.96 (0.70-5.48)	3.02 (0.91-9.96)	0.13 (0.02-0.75) *
Higher	5.07 (1.65-15.54) ***	5.61 (1.56-20.23) ***	0.46 (0.13-1.66)
Work status			
No			
Yes	1.25 (0.95-1.64)	1.09 (0.82-1.46)	0.81 (0.38-1.68)
Wealth status			
Poor			
Middle	0.83 (0.52-1.32)	1.06 (0.65-1.72)	1.82 (0.48-6.86)
Rich	1.09 (0.64-1.85)	1.43 (0.80-2.45)	3.15 (0.76-13.00)

Sex household head			
Male			
Female	1.10 (0.80-1.50)	1.19 (0.83-1.72)	0.70 (0.33-1.51)
Exposure to mass media			
No			
Yes	1.56 (1.19-2.04) ***	1.83 (1.35-2.49) ***	1.47 (0.72-3.00)
HIV Knowledge			
No			
Yes	0.64 (0.11-3.49)	1.26 (0.26-5.96)	na
Community education: % of men with at least a secondary education			
Low			
High	0.90 (0.34-2.42)	1.59 (0.62-4.02)	1.80 (0.38-8.50)
Community poverty: % of men in the poor wealth quintile			
Low			
High	0.72 (0.54-0.95) *	0.77 (0.57-1.06)	1.33 (0.64-2.77)
Ethnic diversity : % of men living in ethnic diverse communities			
Low			
High	0.88 (0.72-1.09)	0.80 (0.65-1.00)	1.14 (0.67-1.93)
Community SSP: % of men engaging in Ssp			
Low			
High	1.05 (0.74-1.47)	0.97 (0.71-1.32)	0.82 (0.41-1.63)
Community HIV testing: % of men who tested for HIV			
Low			
High	0.80 (0.59-1.09)	0.78 (0.57-1.06)	0.64 (0.33-1.25)
Community mass media exposure			
Low			
High	1.23 (0.76-2.00)	1.11 (0.89-1.38)	0.97 (0.49-1.91)
Variance (SE)	**0.14 (0.04) ***	**0.11 (0.04)**	**0.03 (0.14) ***
AIC	**1829**	**1553**	**355**

*p < 0.1; **p < 0.05; ***p < 0.01. Blank items are reference categories

SE: standard error, AIC: Akaike information criterion, *p<0.05

Chapter 7

This chapter presents the reasons youth believed people engaged in certain sexual behaviours and provides another in-depth account of youth engaging in these behaviours.

7.1 Characteristics of participants

Participants in the study were single males and females aged 15–24 years. The total number of FGDs in each city and their compositions (age group, group size, and sexual experience of participants) are shown in table 7.1. A total of 192 young persons, 80 males and 112 females, participated. In terms of sexual experience, 52 (28 males, 24 females) had engaged in sex while 140 (56 males, 84 females) had never had sex. The participants were recruited equally among the 4 study sites. The tribal origin of participants reflected the location of the FGD. Nearly all participants in Kano were Hausas, in Enugu were Igbos and in Osun were Yoruba's. In Edo, however, the participants were mixed. Although the majority were Yorubas, there was a fair representation of participants from other tribes, including Igbo and other minority tribes from the South South Zone in Edo state. All participants except about 4 from Kano were Muslim, just as all those from Enugu said they were Christian. In Osun and Edo state, there was a mixture of Christians and Muslims.

In terms of educational background, participants in Kano included those in secondary school, those who had only basic Qur'anic education, and a few who had never been to school at all. There were more males who had attained secondary education compared to females in Kano. All female participants in Enugu were secondary school students while the males included students and a few who had dropped out of school and were in apprenticeship[3]. In Edo, all male

[3] a person who is learning a trade from a skilled employer, having agreed to work for a fixed period at low wages

participants were secondary school students, while a few of the females only had primary school education. In Osun, both male and female groups included participants with primary education only, those with some secondary education, and a few who had completed university education.

7.2 Why do youth engage in protective sexual behaviours?

To explore the reasons for engaging in protective sexual behaviours, some thematic headings emerged such as; pull, push, coercive, and restrictive factors. Other findings from the focus group discussions complement the quantitative results. The qualitative findings showed that youth perceived their peers aged 18-24 to engage more in protective sexual behaviours like recent abstinence. A number of themes were identified regarding protective sexual behaviours among youth: push factors, pull factors, restraining and motivating factors.

- ✓ Push factors were defined as any "enabling" factors that were internal, i.e., that originated in the youth or the immediate family. This could be factors such as educational attainment, self-esteem and self-efficacy.
- ✓ Pull factors offered attractions to engage in protective sexual behaviours; these were from an external source and included community as well as friendship and peer-related issues.
- ✓ Coercive factors were considered to be outside the control of the youth and bordered on religious activities in the family or school environment.
- ✓ Restraining factors were those that motivated adolescents to delay early sexual initiation which were also internal and in the family environment. These factors could be factors like parental control and school environment.

Age

A number of the youth believed that older youth aged 18-24 would be more likely to be recent abstainers. Participants suggested that differences in sexual

behaviours were explained by a complex mix of biological and social mechanisms. For example, they thought that youth aged 15-17 were biologically highly sexually active, therefore more likely to have multiple sexual partners. On the other hand, sexual risk taking was also considered to be socially embedded in the culture of young people and university lifestyle. They felt that younger youth were more likely to explore and engage in sexual activities. For instance, a male in Edo state reported that: *"18-24 because 15-17 are still new to the job, so they want to still explore more." (Edo Male, Urban, FGD)* which was similar to what was discovered in Osun State: *"I think people aged 18-24 will abstain more because they already have the experience. Also, people aged 15-17 are more likely to be influenced by peer pressure" (Osun Female, Urban, FGD)*

Gender dynamics

Notable gender differentials were seen with regards to protective sexual behaviours. Some of the youth felt that their environment conditioned females to engage in single sexual partnerships. For example, one youth noted:

"*It depends on the society. But in Kano we have more faithful women than men (All agreed to this). It is hard for women to cheat around on their boyfriends unlike men who could see another beautiful girl and run after her." (Female FGD, Rural, Kano)*

Some youth felt that females were more likely to engage in single sexual partnerships compared to males, based on nature or biology. For example:

"It is not easy for men to be faithful because of their dynamic nature." (Female FGD, Urban, Enugu)

The gender-based inequalities or cultural/gender norms may also influence the perceptions youth have regarding gender and sexual behaviours.

Based on the sexual double standards in Nigeria, boys and men were rewarded and praised for heterosexual sexual contacts, whereas girls and women are derogated and stigmatized for similar behaviours. This was noted in some of the responses in the FGD's. In addition, sexual exploits are conquests for boys that gains them status in their environment compared to females who may lose their status by displaying such behaviours.

"Women abstain more because the pressure of maintaining their virginity complements the Nigerian values" (Female, Edo, Rural, FGD)

"Women because it is easy to know a female virgin but you can't tell whether a boy has had sex or not and also because of pregnancies and STDs" (Male, Osun, Rural, FGD)

However, some of the youth pointed out the fact that females may be more likely to engage in transactional sex due to poverty and peer pressure which makes them less likely to engage in protective sexual behaviours compared to their male counterparts.

"In Enugu, people are not faithful at all. Even the guys are more faithful than the ladies. Because the girls are always "akweweme"[4] I want to be one in town. So, with this belief, they are usually with more than one sexual partner because having one boyfriend won't get them the nice phones and clothes they want." (Female, Enugu, Rural FGD).

Gender socialization was also evident in the discussions as females saw themselves as wives and mothers who did not want to ruin their bodies before marriage.

"Women see themselves as mothers, so they don't want to do some nasty things that could affect them and their potential children." (Male, Edo, Urban, FGD)

[4] Akweweme – wanting to use the latest gadgets

Parents were protective factors in the lives of the youth as some of the youth wanted to make their parents proud and some others feared what their parents would do if they found out.

"The men because they don't want to disappoint their parents." (Male, Osun, Rural, FGD)

Some youth also expressed different opinions where they felt females would be more likely to engage in protective sexual behaviours because they assumed males were ignorant.

"Women are the ones who make sure a condom is being used during sex. No, they don't actually care. They feel a woman can look for other ways to protect herself as they themselves can't get pregnant. Most of them (men) have this ignorant attitude. They don't look at the aftermath." (female, Edo, Urban, FGD)

Accessibility and community friendly services also influenced how gender interacted with protective sexual behaviours. A number of the males spoke on how easy it was for them to get condoms and how the community health care service providers like chemist assistants treated females who wanted to purchase condoms. For example, one youth said;

"I think men use condoms more because female condoms are hard to see" (Male, FG, Rural, Enugu).

Education

Education showed a mixed relationship with the different protective sexual behaviour measures in the quantitative results. Some respondents believed that education exposed youth to influences which may hinder them from abstaining.

"The educated people don't abstain because they know all the logistics of sexuality unlike illiterate people who do not have the deep knowledge." (Female FGD, Rural, Enugu)

The effect of education also differed by sexual behaviours in the interviews. The exposure as a result of education may result in condom use and knowledge on use and accessibility.

"The educated people use it more, because in the village buying condoms is not rampant and people do feel shy to buy them in the rural areas." (Male FGD, Rural Edo)

"The educated people, because education exposes you. Some people know about sex, drugs and so many things because they go to school" (Female FGD, Urban Osun)

Education can also result in diffusion of ideas amongst peers in school environment. This could influence youth in various ways, as described by participants:

"Friends in school could influence the sex life of a person. For instance, if one of my friends has sex then comes back and tells me, she will persuade me and tell me to do so; by saying nothing is wrong with it. Someone who is not educated will hardly find themselves in that situation, as their friends might not be educated and have no prior experience." (Female FGD, Urban Enugu)

Others locate the source of this knowledge outside formal education:

"Well, I can say 75% of youth use condoms in my community. Because generally everyone knows what a condom is (Even those who are not educated). Because most individuals have TVs in their house and most have come across an ad that talks about condom usage." (Male FGD, Urban Osun)

Participants also indicated that peers in school environment increased the opportunity for sexual encounters compared to other social networks because of the amount of time spent with them.

"Peer groups in school could influence the sex life of a person. If you are not educated, you don't have any friends that have tried it. Now, if my friend has tried sex and she comes to tell me; "AH! What is there? There is nothing bad in it, you can have sex," stuff like that. It can influence me. But someone who is not educated; guy, I will tell you I don't know what you are talking about, leave me alone. They are always focusing on their business, their farming. People that are not educated don't have time for all these things." (Female FGD, Urban Kano)

Geographical location

Place of residence was also thought to influence sexual behaviour through other socio-cultural factors such as alcohol, religion and attitudes towards sex. For example, participants argued that youth from rural areas were more likely to abstain than those from urban areas because of permissive attitudes towards risky sex in urban areas.

"Rural youth abstain more because of lack of enough technology and there is more of parental culture" (Male, FGD, Rural Enugu)

"Rural people abstain more because they are not expose to all kinds of sexual activities when compared with the urban people." (Male, FGD, Rural Osun)

"Rural people, because the kinds of infrastructures in the urban centers that facilitates sexual activities are not available in the rural centres" (Female, FGD, Rural Osun)

A number of the participants felt that place of residence was linked with exposure and cultural factors that could influence sexual behaviours.

"The more you become exposed is the more you become UN-faithful. For instance, you can't compare the relationship status in Lagos and Osun. In Lagos there are more youth and when you get there, you mingle with more young people who could affect your faithfulness." (Female, FGD, Urban Osun).

The environment was also mentioned in all of the study sites as a factor responsible for protective behaviours among youth.

"The environment plays a role, considering the cultures of the environments; some areas do not frown against young people going out with each other at night and some people won't even report you to your parents when they see you with a girl late at night." (Female, FGD, Rural Edo)

"This community promotes sex because of the kinds of things that happen, like hotels and brothels at stone throws in Enugu." (Female, FGD, Urban Enugu)

"It promotes sex because you can count numbers of churches, but lose count of eateries, hotels and restaurants." (Male, FGD, Urban Enugu)

"They don't want to be disgraced in the community. Because some guys, the moment they have sex with a lady, they go about telling their other guy friends that they have had sex with a particular lady. This could affect the lady especially when she wants to get married to someone from the community." (Male, FGD, Rural Osun)

School environment

In addition to the neighbourhood, the school environment also has influence on sexual behaviours of youth according to the participants. Having some facilities in the library like books help keep some youth in school and prevented them from hanging out with friends that may hinder them from engaging in protective sexual behaviours. Electricity in the community also kept the participants at home, which also helped prevent them from joining gangs.

"Having constant electricity on school premises stops young people from going out. This helps us focus 'cause going out to drink may lead to unprotected sex." *(Male, FGD, Urban Osun)*

"*In my school we have a course; "Farming and sex education". They taught us how to abstain from sex. Even if we are going to have sex, they taught us preventive measures." (Female, FGD, Urban Osun)*

Youth also mentioned some other resources in their environment enable them engage in protective sexual behaviours.

"We have churches where they preach against pre-marital sex." (Female, FGD, Urban Edo)

"Promoting sex education by the government through media, seminars, newspapers etc." (Male, FGD, Urban Enugu)

Some of the youth had experienced adverse life events such as betrayal from friends or had been coerced into their first sexual intercourse which resulted in their abstinence.

"The separation made me hate guys so much that I don't like talking to guys at all, which also affects me in school. My economics teacher is a man and because of the hatred I have for guys, I don't listen to what he teaches in class and I don't understand if I force myself to listen. Also, during that same period, the only best friend I had lied about me to others and it really hurts me." (Female, FGD, Urban Enugu)

"When I entered the university I had this best friend, Ella, she was very close to me so anytime I had this kind of feeling of having sex, I used to tell her but she broke my heart. She disclosed most of my private life to my dad." (Female, FGD, Urban Edo)

"I met this guy in a salon on a mutual ground not knowing he was a stylist. He asked me out but I declined. When I got to know him as a stylist, we started working together that I go to his salon to assist him and also learnt. So I already thought the issue of dating had gone and the relationship had turn boss-worker

relationship. But to my surprise, on one Christmas eve, we finished working late so I decided to go with him to his house to pass the night and he attempted to rape me. I never knew where the power and confidence came from that I did so many things to him and said a lot to him that made him leave me that night and he couldn't succeed in having it with me. I knew it was my level of confidence that led me through that night. I can't trust guys because of this, so I am single for now." (Female, FGD, Rural Edo)

Table 7.1: Why do youth engage in protective sexual behaviours?

Reasons	**Kano**	**Enugu**	**Edo**	**Osun**
Waiting till marriage	M			M
Fear	M	M	Mr	M
Self-efficacy		M	M	M
Self-esteem				M
Planned future		M	M	
Religion	M	M		M
Sexual coercion			M	
Family background	M			
Family support	Mr	M		M
Peers		Mr		M
Presence of role models		M		M
Social capital		Mr		M
Community friendly services		Mr	M	
Opportunity	M	Mr		
HIV Knowledge	M			

Source: Fieldwork 2018 M- Mentioned, Mr- Mentioned in rural area only

Box 7.1: Reasons for protective sexual behaviours among the Hausa-Fulani Respondents

Fear	**Primary abstinence** "I decided to wait because I don't want trouble for myself as I am still living with my parents. Which means I am afraid of impregnating any lady now." (Male, IDI rural educated) "Yes and it is because I am afraid of my father." (Female IDI, urban uneducated) **Condom use** "I think condoms are very important because I am afraid of infections and pregnancies." (Male IDI, urban uneducated)
Religion	**Primary abstinence** "Because it is forbidden. It is forbidden in the Quran and aside from religion, it is morally bad." (Male, IDI urban educated) "Her religious perspective forbids it and fear of STIs." (Male IDI, rural uneducated) "My religion forbids being deflowered until you got married, but me, I am not considering my religion….it's just the fear." (Female, IDI urban educated) "I will say religion has the influence because even if I am doing it, my family will not know." (Female IDI, urban uneducated) "Here in our culture and religion, it is a shame for a lady to lose her virginity before marriage." (Female IDI, rural uneducated) "No! It is not ok because the religion doesn't support it." (Male IDI, urban uneducated) "No! Because our religion said it is not good till one gets married and our parents do tell us it is bad." (Male IDI, urban educated) "Yes it is because I have a good family background and my religion forbids it and I am also scared." (Female IDI, urban educated)
Family background	**Primary abstinence** "I have never had sex. I abstain because of my background and the way I was raised. My mother started training me on sexual education when I was 5 years old. Also, I don't want to lose my virginity. I have had 2 ex-boyfriends - the family friend and one before the family friend - but neither of them pestered me for sex. Even the one I am with now doesn't pester me, because we had an agreement before we started that he won't pester me for it and

	any day he does, that means the relationship is over. So I think it is a good thing that everybody should do." (Female, IDI urban educated)
	Primary abstinence
Peer	"Some of my friends will laugh, but the ones I have in church might not because they too practice abstinence." (Male IDI, urban educated)
	Condom use
HIV Knowledge	"Condom use is ok because it is used to prevent diseases like STDs/STIs and unwanted pregnancies." (Female IDI, urban educated)

Source: Fieldwork 2018

Box 7.2: Reasons for protective sexual behaviours among the Igbo Respondents

	Condom use
Fear	"Yes, I use condoms regularly even if my friends laugh at me because I am afraid of contacting diseases and unwanted pregnancy from any girl." (Male IDI, urban uneducated)
	Primary abstinence
	"Even though I can't get pregnant, the responsibilities of taking care of the pregnant lady is not a joke." (Male IDI, rural uneducated) "Also adding to the fear issue, the lady might decide to abort the pregnancy, and there comes a complication which might lead to death. If this happens, the guy is in real trouble." (Male IDI, urban uneducated)
	Condom use
Self-efficacy	"I am not shy to ask my boyfriend to use a condom. I know some of my friends say they cannot ask because the boy will think they are cheating, but I don't care" (Female IDI, urban educated)
	Primary abstinence

Self esteem	"No. Because I rate them not up to my standard. Though, there was the one who spoke with me sometimes in my class, but I didn't date him because I see that I am more intelligent than him. I would like someone who is more intelligent and calm because I wouldn't want to date someone that is as talkative as I am." (Female IDI Enugu Sub-urban)
	Primary abstinence
Religion	"Some people abstain because of their conscience and what their pastors have told them. One day in church, the pastor told us that our private parts would disappear if we have sex before marriage." (Female IDI, rural uneducated) "I think my Sunday school teacher also makes me believe that it's good to wait till marriage before having sex." (Female IDI, rural uneducated) "I think I delayed sex because I was an altar boy" (Male IDI, urban uneducated)
	Primary abstinence
Family background	"My family background and my mum made me vow never to have it till marriage when I was coming to the hostel and my sister also advises me. Lastly, I know my worth." (Female IDI Enugu sub-urban) "I have planned to keep myself till I get married because I see many girls who dropped out of school because of unwanted pregnancy. I also want make my mum proud because my father doesn't really believe in girl children so I want to change his mind about that." (Female IDI, urban educated)
	Primary abstinence
Peer	"My friends and I told each other to wait till we get married" (Female IDI, urban uneducated)
	Single sexual partnerships "Some of my friends put me under pressure to cheat on my girl by laughing at me if I don't react to the advances of another girl when we go out. " (Male IDI, urban uneducated)
	Recent abstinence
Role models	

	"Eh hen, I am trying to be like my brother because he is a more coordinated person than me, based on the school he went to. A lot of people in our neighbourhood have impregnated girls and I can see how it has affected their school. My brother is now in the university and sends me and my mother some money. I have been able to learn how to barb hair because of the money he sent. This keeps me busy and I don't have time to drink with my friends." (Male IDI Rural, educated)
	"I think I had sex early because of my friends, they all said they were having sex but I have not had sex for about 18 months now and I lie to them so they don't laugh at me." (Male IDI Rural, uneducated)
	"The day me and my pastor's wife had a close discussion, she told me she got married at the age of 28 and she was still a virgin and I felt very touched, In fact I cried. Then I made up my mind: like if someone was up to 28 till then I might be able to do so." (Female IDI Rural, educated)
	Condom use
Community services	
	"I can buy condom at the pharmacy anytime I want it. There was one time I asked the pharmacist what my girlfriend could use when we forgot to use condom and she gave me some pills for my girlfriend." (Male, IDI Rural, educated)
	"I prefer the chemist because I see them as more confidential. The hospital seems too open for one to be identified easily." (Male, IDI Rural, educated)

Source: Fieldwork 2018

Box 7.3: Reasons for protective sexual behaviours among the Edo Respondents

	Primary abstinence
Fear	"My greatest fear is pregnancy, I also fear infection and transmission of disease." (Female IDI, rural educated)
	Single sexual partnerships
Religion	"Mine is religion, the religion one practices which devalues such acts makes me avoid such behaviours because I believe it leads to eternal condemnation and I can back this up with social learning theory which states that the outcome of a child in a society is based on the parenting pattern of the parents. So I think my parents and my religion are the reasons I don't believe in having more than one partner and this makes me act according to the religious ways." (Female IDI, urban educated)

	Primary abstinence
	"Primary abstinence is better. A lot of young people have made a vow with God that they won't break it till their wedding night. But there are some things that goes in line with this, there is something called STI of the mind which is different from Sexually Transmitted Infection. When you have sex in the very first time, your mind is corrupted and it only takes God's intervention to get over it. It affects everything about your psyche and is always making you get lust whenever you see a girl. Primary abstinence is cool but secondary abstinence is difficult." (Male IDI, urban educated)
	Abstinence
Family background	
	"Yes, my aunt because she was a virgin too before she got married and I want to be like her." (Female IDI, urban educated)
	Condom use
HIV Knowledge	
	"I don't have trust in the use. Because I have heard of situations where the condom did not prevent pregnancy." (Female IDI, urban educated)

Source: Fieldwork 2018

Box 7.4: Religion as a protective factor for youth sexual behaviour among the Yoruba Respondents

	Primary abstinence
Fear	
	"I am afraid of parents, that they will disown me if they find out and I also want to obey them and my culture." (Female IDI, urban educated)
	Condom use
	"I might get pregnant and destroy my future." (Female IDI, urban educated) "It's a personal decision and I am also afraid to get a girl pregnant. I don't want disgrace. I hate (the idea of) a situation where I'm passing by and people will be pointing fingers at me, (thinking) 'this is the boy that did this.' I hate that. " (Male IDI, urban educated)
	Primary abstinence
Religion	

	"The only thing I think about is what my religion says about it because you need to abstain. Even in Christianity, we are told that having sex before marriage is not good and in Islam also it is prohibited to do so." (Female IDI, urban educated) "Religion is influencing us. It talked about sex. Early sex is not good. It is there in the Bible; sex before marriage is a sin. Not just a sin, it's fornication. So the best way to abstain from it to me is not keeping female friends. Because you can't keep a female friend and say she is your friend, something will come between you one day." (Male IDI, urban educated) **Recent abstinence** "Yes, maybe they are tired and also you know they have passed through that phase. They have seen a lot of things, they have experience of this. They maybe think like, 'Wow I have been doing this thing for a long time, I have escaped pregnancy, I have done this, I have done this.' Maybe. For example, religiously; they went to a program and somebody said this and this and this and this. They will later discover that, (thinking) 'wow! I have escaped this don't let me go back in to it.' So religion also influences them. As they are getting older they will not want to do those things again." (Male IDI, urban educated) **Abstinence**
Family background	"The dignity of a lady matters, and the fear that parents have invested in their daughters' heart; that if you let any guy touch you, you get pregnant. So that fear or mentality follows the kid till he or she grows up. And she will want to keep the dignity, you know pastor will preach, "It's a dignity to keep your virginity till you get married" you understand? So some girls will want that ego that my husband met me a virgin. So I still have my dignity. " (Female IDI, rural educated) **SSP** "I am not cheating because I have seen my parents' marriage. My parents. they've been together. They are still together and from what they show they love themselves." (Male IDI, urban educated) **Condom use**
Parental support	"Yes. Personally my own experience. When I was eighteen on the day of my birthday my dad gave me a pack of condoms. He was like, keep it. He was like,

	you can do all these but keep this. So some parents help." (Male IDI, urban educated)
	Abstinence
Peer	
	"Some people use condoms because they want to prevent themselves from getting disgraced by their peer group. If for instance, I have a friend who is abstaining from sex and I want her to see me as the same as she is, I would use condom during sex so I don't get pregnant. In using condom, I can also claim to be a virgin without anyone knowing." (Female IDI, rural educated)
	Condom use
Youth friendly services	
	"Quack doctors and chemists are friendly to young people here. And even cheaper than hospitals." (Male IDI, Rural educated) "Yes, they are approachable in this community. Most of them are even using it as business even if they don't know what to prescribe to you, especially those quack ones. They will now establish a relationship with you since they know that you can't go to your parents you will come to them." (Male IDI, Rural educated)

Source: Fieldwork 2018

Resilience and Vulnerability Experiences among Youth in Nigeria

In this section, I start by explaining what my participants counted as sex, before highlighting how males and females negotiated sexual activity and avoided sexual intercourse even in the face of risk. Understanding risk in this study entails looking at how youth manoeuvre sexual coercion and negotiate condom use. It also necessitates investigating how they cope in the face of peer pressure to engage in single sexual partnerships.

7.3 Exhibiting resilience

A number of youth perceived that vagina penetration was the only act that counted as sex. As mentioned throughout this thesis, evidence of a woman's virginity is assured through the preservation of the intact hymen, even though not all virgins bleed upon first penetration. What counted as 'sex', was often constructed in relation to vaginal penetration. Only a couple of participants counted other forms of non-vaginal-penetrative sexual acts. Therefore, a number of the participants engaged in other sexual activities apart from penetrative sex to avoid pregnancies and STIs. These activities include; kissing, holding of hands, masturbation and oral sex. The findings revealed that young people have developed strategies that they used to negotiate sexual vulnerability. A number of these ways pertained to inner strengths.

Masturbating

A number of young people resorted to masturbation and dry humping[5] because of fear of early fatherhood or risk of pregnancies and as a result of the messages of "abstinence-only programs."

"Before I have those kind of feelings, I had a best friend in secondary school, those kind of feelings I don't like to say because I am a very kind of secretive person even though I am burning inside, I will just go and touch myself in my room." (Male IDI, Rural educated)

"Sometimes, I use pillow when I feel like having sex. This is because I don't want to get pregnant and I am also afraid of having sex with a boy." (Female IDI, Urban educated)

[5] Dry humping is sexual activity that doesn't involve direct contact between genitals (dry referring to the lack of bodily fluid exchanged).

Being strong willed

The youth who showed resilience were those who had made up their minds about not engaging in any form of risky behaviour for strong personal reasons. They mentioned that they wanted to focus on their studies and sexual relationships could be a distraction.

"To me, it's the heart that matters. When you decide that you are not going to do anything like that, you will definitely not do it. When you start thinking about people's opinion in your head, you will be hurting yourself as the best advice you can give someone is the one you give yourself." (Female, IDI, Urban Osun)

"You just have to make up your mind. Things start from your mind. If you see a girl passing by just remove your eyes and that's all." (Male, Urban Osun, IDI)

"I don't keep female friends. I only have male friends." (Male, Urban Kano, IDI)

When faced with peer pressure, some young people show strong will and resilience.

"Yes, from friends but I made them realize I am not in the relationship for that. I love my girlfriend as a partner and not as a commodity." (Male, IDI, Urban Osun)

Sometimes, some young men are also under pressure to show masculinity by engaging in some sexual behaviours. Some of them do not succumb based on findings from the participants.

"I will convince her. And nothing can change my mind over that." (Male, IDI, Urban Enugu)

"Something like that had happened before, I told her I wasn't ready for that because if she got pregnant, I can't take care of her. I am not financially stable and it will disturb my psychology which will affect my schooling." (Male, IDI, Rural Edo)

Engaging in long distance relationships

Some of the participants noted that they purposely engaged in long distance relationships to avoid sexual intercourse with their partners. They felt that being in school far away from home reduced the times they would see their partners which helped them abstain as they intended to stay faithful to these partners. When asked how they coped during the holidays, they explained that staying with their parents also protected them as their partners could not visit them at home.

"My boyfriend is not in my school. I don't want to date someone in my school because he will be pestering me for sex. When I go home, my boyfriend can only visit me during the day because I cannot stay out late." (IDI Female, Rural Osun)

"I chose not to date someone in Nigeria. My boyfriend is in Italy and I only see him when he comes to Nigeria. He doesn't come often but I am staying faithful to him because he is getting his papers to come take me to Italy." (IDI Female, Urban Osun).

Having discussions before starting relationships

Some of the participants also stated that they reached agreements before starting relationships. They and their partners have decided to wait until marriage and this helped them stay away from sex. They reported that they avoided being in the same room which could lead them to sex. They spent their free time by watching movies and going to the cinemas.

Engaging in other sexual activities asides from penetrative sex

Apart from having these discussions on engaging in protective sexual behaviours, a number of the participants highlighted that they engaged in other sexual activities when tempted.

"I can just kiss her and do some other things aside from sex to release. That is all." (Male, IDI, Urban Osun).

"The action won't affect me because if we are alone and it goes beyond our control, we stand up and take a walk." (Male, IDI, Urban Edo).

Avoiding risky environments

In addition to engaging in other activities apart from penetrative sex, participants also avoided risky environments. Some of the participants had stated that going to clubs could expose them to some behaviours they wanted to avoid, so avoiding these places were ways to ensure they engaged in protective sexual behaviours.

"Hmm, it will be easy but you won't involve yourself in many events, in many things. You won't go to a club; you won't be watching all those kind of movies." (Male, IDI, Urban, Enugu)

"I don't find myself in such situations but before I start a relationship I made an effort to know that since I'm in the relationship I have to stay faithful. So if I want to move astray and all that I just break it up." (Male, IDI, Urban Osun)

"As a guy, you should always make sure at least you go to party with a condom, my withdrawal game is very strong but because of human imperfection, condom use is very key." (Male, IDI, Urban Edo)

On risky environments, parents and communities also served as mechanisms that helped youth avoid sexual vulnerability. This was through established norms given by the parents and members of the communities which denied youth below the age of 21 access to some public centres of entertainment, the physical and social space in which the young people spent their free time, or where they met their potential partners, and had sexual and erotic encounters. Youth mentioned that their parents believed that the house and the presence of adult family members in the household provided some form of protection from engaging in risk. However, this differed by gender. Male youth did not experience this protection as their parents it was echoed that females were

more likely to be exposed to sexual risk outside the home compared to makes. For instance, majority of the youth interviewed in Kano state reported that confinement to the home is a measure of female morality and decency amongst females. For males, going out was a form of socialization and it was believed that facing risk outside the home made males stronger.

"If I am not home by 6 p.m., my mother gets frantic and starts calling my phone asking, "where are you!" and this and that. She tells me, using a tone of criticism. Sometimes, she even calls my friends. But when my brother comes at midnight or the next day, she just says, "close the door, don't leave it open." I don't think that's fair." (Female, Rural Kano, 21 years old)

Another way in which some of the youth stayed resilient was by self-regulating their sexual desire. This was done because they wanted to avoid being labelled as "loose," as they said it may influence their future marriageability prospects. A lady from Edo state stated "*boys don't respect girls that sleep around, which is why I am not going to have sex with any boy while I am studying."*

Chapter 8

HYPOTHESES TESTING

8.1 Introduction

The purpose of this chapter is to test the study's hypotheses, by discussing how the results support the study hypotheses. Specifically, positive identity development and social support emerge as likely promotive factors. Identity development is central in the lives of youth, and these youth are living in different contexts. Our theoretical framing of resilience builds primarily on the work of Fergus and Zimmerman but is also consistent with other foundational work in the field. The following research hypothesis were tested:

i. Females are more likely to engage in protective sexual behaviours compared to males;
ii. Youth living in rural areas are more likely to engage in protective sexual behaviours compared to their counterparts in urban areas;
iii. High socio-economic status is associated with increased likelihood of protective sexual behaviours among youth;
iv. Highly religious youth are more likely to engage in protective sexual behaviours;
v. Family structure will act as a compensating factor in the presence of economic deprivation for youth protective sexual behaviour;
vi. High community social capital is significantly associated with high levels of youth protective sexual behaviour.

8.2 Theoretical and empirical background for the research hypotheses

This section provides some theoretical and empirical background for the hypotheses tested. The first hypothesis focuses on gender and protective sexual behavior. I hypothesized that females are more likely to engage in protective sexual behaviors compared to their male counterparts. Several studies have

suggested that males and females differ in their motivations for engaging in sexual exploration, which is mainly as a result of the cultural characteristics of the environment (DiBlasio & Benda, 1992). A number of these studies have also concluded that males are less likely to engage in protective sexual behaviors compared to their female counterparts (Odimegwu & Somefun, 2017; Prata, Vahidnia, & Fraser, 2005). Apart from the cultural reasons associated with males' lower likelihood of engaging in protective sexual behaviors, expression of individual sex role self-concepts has also been attributed to the gender differences in youth sexual behavior. This supports the established notion that males are more likely to exert their masculinity. However, the risk and resilience framework used in this dissertation supports the fact that some young women can have positive outcomes even in the face of risk which is why I have posited that females may be more likely to engage in protective sexual behaviors in environments that are not supportive of them. This may be because they want to go against the set norms in the environment or because of individual protective factors such as self-esteem and high goals or standards they may have set for themselves. Female youth may deviate from the norm that subjects them to risky behaviors in the presence of protective factors in their lives, households or environment. Also, if they are committed to achievement goals and are determined to excel in other areas such as academic pursuits, they are more likely to engage in protective sexual behaviors to ensure future aspirations are not jeopardized. Apart from the individual protective factors present in the lives of youth, conforming to the moral validity of parental norms and restrictions may also allow female youth to engage in protective sexual behaviors. The social control theory supports this hypothesis. This theory by Reckless (1961) posits that control results from moral teachings primarily given by parents which is characterized by youth having a positive outlook towards life, having aspirations and being goal-oriented. These personal attributes are strengthened

in the household and may enable female youth to engage in protective sexual behaviors even in the face of vulnerability.

Our second hypothesis posits that living in rural areas will be protective in the lives of youth. Youth exposure to risk and how they can avoid or overcome the risk is greatly influenced by socio-cultural factors stemming from the societal norms and values on gender and sexuality (Varga, 2001). The social environment of a young adult can be a source of protection against the effect of risk (Alvord & Grados, 2005). Having a sense of belonging in a society can serve as a protective factor for at-risk individuals. Therefore, I have hypothesized that living in rural areas can protect youth from risky sexual behaviors. This is because there may be more social capital available to youth in rural areas compared to urban areas. This capital could also be economic and cultural as recognized by the seminal work of Richardson and Bourdieu (1986), which may allow youth to avoid behaviors that put them at risk. Although literature suggests that urban areas have more educational amenities, I believe that inequality in access and individualistic tendencies which are characteristic of urban areas may put youth there at risk. I also posit that there is more cultural capital available to youth in rural areas compared to their counterparts in the urban areas. Cultural capital refers to the ideas and knowledge that people draw upon as they participate in social life. This includes resources acquired through the values and norms that exist in a specific social context. The acquired cultural knowledge informs a youth's skills, behavior and attitudes which can be used to avoid, overcome and adjust positively to risk factors. According to Richardson and Bourdieu (1986), a young adult can acquire this capital by socializing in the environment, accumulating valued cultural objects or through institutions. It is therefore possible that the caring relationships with adults in rural communities or extended family members may help youth build resilience that will influence their protective sexual behaviors. This capital may buffer the effect of low access to educational opportunities that youth in urban areas may have had compared

to their counterparts in rural arears. Based on these relationships, youth may be able to develop intimate relationships with adults in the communities and have role models that will enable them to engage in protective sexual behaviors. Symbolic capital in form of honor and prestige may also be more readily available in rural areas compared to urban areas which may increase the likelihood of rural youth engagement in protective sexual behaviors.

The third hypothesis posits that high socio-economic status will be associated with increased likelihood of protective sexual behaviors among youth. This is in support of the protective factor model in the risk and resilience framework which suggests that promotive assets or resources modify the relationship between a risk and another protective outcome. I posit that household wealth status, higher levels of education and work status are all protective factors which will enable youth to engage in protective sexual behaviors. This is because safe sex may be expensive for low income youth. Males and females from low income households may not be able to afford condom use. It is also possible that some youth engage in transactional sex which may provide compensation for risky sexual behaviors. Youth from rich quintile households may also benefit from family support which may increase their likelihood of engaging in protective sexual behaviors as it has been documented in some studies (Ajayi & Somefun, 2019). Another mechanism through which high socio-economic status influences protective sexual behavior among youth is the purchasing power. Females and males who are working will be able to afford contraceptives. It is also more likely that they are exposed to a wider network of people at their work place which may give them access to information that will protect them from risk. This diffusion of ideas could also work for youth who are more educated compared to their counterparts with lower levels of education.

My fourth hypothesis states that religiosity will also be associated with protective sexual behaviors among youth. Religiosity has been extensively documented to have a potential for influencing, mitigating, or enhancing

resilience with respect to harmful behaviors, thereby promoting protective sexual behaviors among youth (AbdAleati, Mohd Zaharim, & Mydin, 2016; Yonker, Schnabelrauch, & DeHaan, 2012). Religiosity may have a direct effect on youth sexual behavior or act as a buffer in the face of risk (Francis et al., 2019). Religiosity has been observed to be a potential important modifier of risky behaviors and this is highly prevalent in Nigeria despite rapid social change. One proposed mechanism through which religiosity is thought to influence protective sexual behavior is by imparting meaning, purpose in life, and peace of mind to youth. In addition, many religious organizations also condemns sexual activity outside marriage. Some studies have argued that religiosity is associated with benefit finding, which refers to the phenomenon of finding positive meaning in negative events (Foster et al., 2013). Religiosity consistently plays an important role in the lives of Nigerians especially because of the socio-economic status of many people who use churches and other places of worship as safety nets and forms of capital in addition to being places of worship. It is based on this background that I hypothesize that highly religious youth will be more likely to engage in protective sexual behaviors even in the face of risk. I expect that religiosity will enable youth to abstain from early sexual debut and I also expect religiosity to influence youth from disadvantaged households or communities to engage in protective sexual behaviors because of a sense of belonging in their place of worship and also trying to maintain the benefits of capital they benefit from their religious networks.

Drawing from the compensatory model of the risk and resilience framework, my fifth hypothesis suggests that family structure will compensate for the negative effect of coming from an economically disadvantaged neighborhood which may eventually protect youth from engaging in risky sexual behaviors. Based on the available literature, it is expected that youth experiencing economic disadvantage would have lower levels of protective sexual behavior compared to their counterparts without economic disadvantage. However, studies have

shown that factors at the family level in the lives of youth may compensate for economic disadvantage at the community level. This has been established in a paper that examined the protective effects of family structure for adolescent development in sub-Saharan Africa (Somefun & Odimegwu, 2018a). I expect that the effect of family intactness will be stronger in the lives of youth compared to economic disadvantage at the community level. This is because family intactness is associated with closer levels of parental monitoring and support which are important for the healthy development of young adults (Fosco, Stormshak, Dishion, & Winter, 2012; Shek, Xie, & Lin, 2015).

Finally, my sixth hypothesis is that that high social capital at the community level will be associated with higher odds of protective sexual behavior among youth in Nigeria. This is in line with the ecological framework and the growing evidence that youth's resilience and health outcomes arise not only from individual traits, but also from the influences of communities in which they reside in. Social capital has been described as an extensive range of specific benefits that flow from the trust, reciprocity, information and cooperation associated with belonging to social networks. Social capital sometimes explain how peculiar networks shape the health and health behaviors of young adults. Scholars (Coutts, Kim, Kawachi, & Subramanian, 2004; Woolcock & Szreter, 2004) have explained that different types of social capital, including bonding, bridging, and linking social capital, may benefit youth via different mechanisms.

According to Woolcock and Szreter (2004), bonding social capital encompasses trusting relationships between members of a social group who share a common social identity. For youth, bonding social capital might include peers, partners, siblings, or other family members. Bridging social capital denotes respectful relationships and resemblances between those of different socio-demographics (e.g., age, ethnic group, socioeconomic status). For youth, bridging social capital could include adults in their community such as teachers, religious leaders, or health care providers (Resnick et al., 1997). Finally, linking social capital

consists of networks of trusting and respectful relationships between people who are acting across explicit power or authority gradients (Woolcock & Szreter, 2004). This could mean relationships that promote youth connection with institutions outside of their immediate community such as decision-makers in higher education, employment or government. It is based on this theory that I suggest that presence of role models in the community which is a source of social capital will be associated with higher likelihood of protective sexual behaviors among youth in Nigeria.

8.3 Testing of hypotheses

8.3.1 Hypothesis one

H_0: Females are less likely to engage in protective sexual behaviours compared to males

H_1: Females are more likely to engage in protective sexual behaviours compared to males

The hypothesis above examines the relationship between gender and protective sexual behaviors among youth. It was tested by conducting logistic regression analysis. The significance of this relationship was tested by examining the p-value corresponding to the estimated odd ratios, with the p-value set at 95% significance level (α=0.05). Results from the analysis of the primary data show that males had higher odds of engaging in protective sexual behaviors compared to females at 5% level of significance thereby we fail to reject the null hypothesis as there is not enough evidence available to suggest the null is false at the 95% confidence level. This implies that my data could not confirm the first hypothesis.

8.3.2 *Hypothesis two*

H_0: Youth living in rural areas are less likely to engage in protective sexual behaviours compared to their counterparts in urban areas.

H_1: Youth living in rural areas are more likely to engage in protective sexual behaviours compared to their counterparts in urban areas.

Hypothesis two tested the association between place of residence and protective sexual behaviours among youth. The logistic regression and multinomial model were used to test the hypothesis and the examination of the corresponding p-value set at 95% significance level (α=0.05). The results of this test indicate that living in a rural area was significantly associated with lower odds of protective sexual behaviours among the youth thereby leading to the acceptance of the null hypothesis. Results from analysis of both NDHS (2003,2008 and 2013) and primary data did not provide enough evidence that would enable the acceptance of research hypothesis that residing in rural area is significantly associated with protective sexual behaviours among youth in Nigeria. This implies that the study data could not confirm this hypothesis.

8.3.3 *Hypothesis three*

H_0: High socio-economic status is associated with decreased likelihood of protective sexual behaviours among youth

H_1: High socio-economic status is associated with increased likelihood of protective sexual behaviours among youth

Hypothesis 3 examines the relationship between socio-economic status and protective sexual behaviours among Nigerian youth. To test this hypothesis, the significance of the relationship between socio-economic status measured as educational attainment, work status and household wealth status and protective

sexual behaviour was tested by examining the p-value associated with the estimated odds ratio, with significance level of p-value set at 95% alpha level (α=0.05). Results from the analysis of both NDHS and primary data revealed a significant association between socio-economic status and protective sexual behaviours among in Nigeria ($p<0.05$). This implies that youth with higher levels of education, working and from richest quintile households had higher odds of engaging in protective sexual behaviours.

8.3.4 Hypothesis four

H_0: Highly religious youth are less likely to engage in protective sexual behaviours

H_1: Highly religious youth are more likely to engage in protective sexual behaviours

Hypothesis 4 focuses on the relationship between religiosity and youth protective sexual behaviours. It is hypothesised that being highly religious will be associated with higher levels of protective sexual behaviour among youth. This hypothesis was tested using logistic regression. The significant association between the independent and the outcome variable was tested by examining the corresponding p-value of the estimated odd ratio which was set at 95% level of significance (α=0.05). The DHS data could not measure religiosity but results from the primary data showed that highly religious youth had higher odds of engaging in protective sexual behaviours compared to their counterparts. This implies that the null hypothesis will be rejected. It can be concluded that the results confirmed hypothesis 4.

8.3.5 *Hypothesis five*

H_0: Family structure will not act as a compensating factor in the presence of economic deprivation for youth protective sexual behaviour.

H_1: Family structure will act as a compensating factor in the presence of economic deprivation for youth protective sexual behaviour.

Hypothesis 5 tests the association between family structure, neighbourhood disadvantage and protective sexual behaviour among youth. The testing of this hypothesis involved fitting multilevel logistic regression and examination of the corresponding p-value set at 95% significance level (α=0.05). I also tested for interaction effects to examine how family structure moderated the effect of neighbourhood poverty and protective sexual behaviour among youth. The result of this test showed that family structure compensated the effect of neighbourhood poverty; thereby leading to the rejection of the null hypothesis.

8.3.6 *Hypothesis six*

H_0: High community social capital is not significantly associated with high levels of youth protective sexual behaviour

H_1: High community social capital is significantly associated with high levels of youth protective sexual behaviour

Hypothesis 6 posits that community social capital significantly increases the odds of protective sexual behaviour among youth. The testing of this hypothesis was done using the results from the multilevel analysis. The test also involved examination of the corresponding p-value of the test statistic set at 95% level of significance (α=0.05). Results from the primary data show that youth living in communities with high social capital have higher odds of engaging in protective sexual behaviours. This implies that the null hypothesis will be rejected, and

high community social capital significantly influences protective sexual behaviour among youth positively.

8.4 Summary of the chapter

In summary, six hypotheses were tested in this study. Hypotheses 1 to 4 focused on the influences of individual determinants on protective sexual behaviour among youth. Results from the study data could not confirm hypothesis 1 and 2. Findings showed that females and youth living in rural areas had lower odds of engaging in protective sexual behaviour. However, the results confirm hypothesis 4 which posited that highly religious youth are more likely to engage in protective sexual behaviours. Hypothesis 5 which highlighted the compensatory effect of family structure in the presence of neighbourhood deprivation was also confirmed by the results. Finally, the results confirms the significance of community social capital for the protective sexual behaviours of youth in Nigeria.

Chapter 9

DISCUSSION, CONCLUSION AND POLICY IMPLICATIONS

9.1 Introduction

This study examined five specific objectives. First, it described levels, trends and patterns in primary and recent abstinence among never-married youth (age 15-24) in Nigeria over a ten-year period using data from three nationally representative surveys conducted in 2003, 2008, and 2013. Second, it identified the individual, household, and community-level factors associated with protective sexual behaviours among the youth. Third, it determined the mechanisms through which risk and protective factors influence protective sexual behaviours among youth in Nigeria. Fourthly, it examined why some youth choose to engage in protective sexual behaviours in the same environment as their counterparts who do not. Finally, it examined how youth manoeuvre challenges in the face of extreme sexual vulnerability.

The purpose of this chapter is to present the discussion of the findings of this study. Furthermore, it presents the study's conclusion and recommendations. Summaries of the findings presented in the fourth to eighth chapters are drawn, detailed, and discussed in the light of the existing literature.

This chapter is divided into five sections which discuss the five specific objectives of the study. The strengths and weaknesses of the study are later presented after which I present the conclusions and frontiers for future research.

9.2 Discussion on levels, trends and patterns of protective sexual behaviours among youth in Nigeria and quality of 2003, 2008 and 2013 NDHS data

Protective sexual behaviours were evident among youth in Nigeria and a notable increase was observed. Specifically, there was an increase in primary abstinence

among males and females between the years 2003 and 2013 although the increase was higher among the males. This result is similar to the results from the study sites where more than half of the youth were primary abstainers. Youth in Osun state had the highest number of primary abstainers with Edo state being the lowest. Nigeria can be considered a highly conservative society and a number of traditional norms and religious doctrines in most Nigerian culture demand sexual abstinence before marital unions. It is possible that youth are being guided by these norms to delay sexual debut.

Although it has been suggested that abstinence only programmes to prevent HIV infection are ineffective and do not effectively encourage abstinent behaviour, there are a number of interventions that reiterate the importance of abstinence as the best available option for preventing both pregnancy and sexually transmitted infections, including HIV/AIDS. The National Policy on Health & Development of Adolescents & Young People in Nigeria promotes abstinence only programmes as a key intervention for young people. It is possible that these policies are effective in Nigeria and it would be wrong to doubt the effectiveness of these programs based on the contextual differences in efficacy of different policies. This has also been buttressed by Mokwena and Morabe (2016) who noted that, promoting sexual abstinence should remain an agenda for policy makers and program planners globally because of cultural disparities, individual choices and religious views. This could imply that although abstinence-only programs have been found ineffective in OTHER places, like the US, it doesn't mean they are ineffective in Nigeria as they have been found to be a reason for the increase in protective sexual behaviours and decrease in sexually transmitted infections in Uganda. In addition, my results showed that more than half of the youth in Nigeria were primary abstainers; a percentage of youth too high to ignore.

The implications of this finding could be that the interventions targeted at young people in Nigeria are reaching them and allowing them to abstain from sex. It is

also possible that the sociocultural norms in Nigeria around sexual behaviours are more proscriptive. Recent abstinence among youth showed a downward trend for both males and females. Our results on the decline in recent abstinence among both males and female youths are surprising. However, we suggest that youth who have started having sex may have knowledge on safe sex practices and see no need to abstain.

The DHS data showed that abstinence was higher among male youth compared to female youth while the primary data showed contrary results. Results from the primary data corroborate with another study which aimed to examine the trends and patterns of abstinence among youth in Kenya (Chiao & Mishra, 2009). Reasons for the different results could be as a result of the timing of data collected. It is also possible that youth spoken to during the primary data collection felt more comfortable with talking to their peers.

Similar to abstinence, a high percentage of youth were engaging in single sexual partnerships during the three survey years. However, for single sexual partnerships, there were more females engaging in single sexual partnerships in 2008 and 2013. Our results are consistent with what other studies have found on the association between gender and sexual behaviour of young people in Nigeria (Aboki, Folayan, Daniel, & Ogunlayi, 2014; Odimegwu & Somefun, 2017). This could be as a result of disparities that exist in socialization for males and females in Nigeria. For instance, females are expected to be responsible and socialized to be care takers while males are socialized to take risks and be brave. Males and females learn about the ways in which they should act and according to their gender, from their peers and family. Culturally defined gender roles exist for males in Nigeria, just like a number of African societies. This may allow for women restrict the number of sexual partners they can have.

Although the percentage of male youth engaging in single sexual partnership is high, existing programs must sustain interventions and must come up with new

interventions to address other youth who are engaging in multiple sexual partnerships. This is because involvement in multiple sexual partnerships may not be as a result of ignorance but due to the social environments males interact with and assert their masculinity, transit from boyhood to adulthood, and configure their identities to gain acceptance into a local male peer community (Izugbara & Modo 2007).

HIV testing was another protective sexual behaviour I examined. An advantage of HIV testing is the knowledge of one's status and the prompt for the adoption of healthier sexual lifestyle, which helps limit the incidence and consequently prevalence of the disease. In addition, youth who have tested HIV-positive would get counselled on healthy sexual practices and be exposed to anti-retroviral therapy. It has been established that youth are at a higher risk of contracting HIV. Therefore HIV testing among this cohort will help them make informed choices about their sexual behaviours Consistent with what other studies have found, the percentage of youth testing for HIV is still very low in Nigeria (Ibrahim, Ipadeola, Adebayo, & Fatusi, 2013; Nwachukwu & Odimegwu, 2011; Ogaji, Oyeyemi, & Ibrahim, 2013; Wusu & Okoukoni, 2011), although there is a larger increase among females compared to the males. There were also more females testing for HIV during the three rounds of the survey compared to males. This gender differential is similar to a recent study conducted among University student in South West Nigeria (Abiodun, Sotunsa, Ani, & Jaiyesimi, 2014).

For a country that has the second largest population of people living with HIV and a youth bulge, the limited HIV testing among youth is worrisome. Existing studies report that the federal government of Nigeria has put up policies emphasizing universal access to HIV Counselling and Testing (HCT) services as a major thrust in the national response to the epidemic with the ultimate goal of halting the spread and possibly reversing the spread of HIV (Yahaya, Jimoh, & Balogun, 2010). The Nigerian national strategic plan (2010–2015) has also

reiterated the commitment of the government to provide equitable and sustainable universal access to HCT services.

However, our results show that a large number youth are not testing for HIV. We suggest that these services may not be accessible to youth or maybe these services are not youth friendly. Access (geographical and financial) and availability of youth friendly services have been cited as reasons why youth do not utilize health care services in the literature (Odo, Samuel, Nwagu, Nnamani, & Atama, 2018). It is also possible that youth experience stigmatization at the youth centres which may serve as a hindrance to utilizing these services (Odimegwu, Akinyemi, & Alabi, 2017). It is also possible that these policies are effective at the national level and may not be able to reach rural youth or young adults are afraid of what the results may tell. This is also related to the scarcity of counselling services with regards to HIV testing among youth. Our results may also be partly because of the high number of young people abstaining. They may believe they are not at risk of HIV/AIDS, hence may not see the need for periodic screening.

Our results are not entirely in line with existing literature on the gender differentials in HIV testing among youth. Some studies have found a higher percentage of males testing compared to females (Hensen et al., 2015) while some studies have documented that men are less likely to test compared to women (Choko et al., 2017; Conserve, Sevilla, Mbwambo, & King, 2013; Somefun, Wandera, & Odimegwu, 2019). The studies that have documented a higher number of females testing have sample married women and have explained that HIV testing among women may be due to the opportunity of HCT at ANC (Angotti, Dionne, & Gaydosh, 2010; Dovel, Yeatman, Watkins, & Poulin, 2015).

There was a larger increase in the use of condoms among females compared to males but the percentage of males using condoms was higher for all the three

years. These results are not surprising as this has been consistently found in the literature. However, it is important to note the increasing trend for females.

In summary, Nigerian youths are engaging in protective sexual behaviours with an upward trend over the last decade. There are a number of programs designed by the federal and state government and it is important to commend their actions over the past decade (Abiodun et al., 2014). For instance, the Family Life HIV/AIDS Education programme has been designed to improve the knowledge of in-school youths in Nigeria. Other programs include the Safe Spaces program and the mass media exposure by the National Agency for the Control of HIV/AIDS (NACA). However, the progress being made in relation the sexual and reproductive health of this cohort needs to be sustained.

Findings of this study suggest that much still needs to be done in Nigeria considering that progress made in protective sexual behaviours among youth in Nigeria. The percentage of youth engaging in these behaviours varied. Program planners should pay more attention to this area of counselling and testing to increase testing among youth and ultimately reduce HIV/AIDS mortality in Nigeria. Self-testing for HIV kits may be considered as an intervention for young people as it addresses concerns related to issues of confidentiality.

Most of our results in this section points to the gender imbalance among male and female youth in Nigeria. Nigerian traditional society is characterized by patriarchy, where men tend to hold the positions of power, and characterized by social stratification on the basis of sex. Our findings in the section generally have implications for gender mainstreaming[6] into sexual and reproductive health programming for youth in Nigeria.

[6] Gender Mainstreaming is a globally accepted strategy for promoting gender equality

9.3 Discussion – individual, household and community-level factors protective sexual behaviours among youth in Nigeria

The second objective of this study was to examine the individual, household, and community-level factors associated with protective sexual behaviours among youth in Nigeria. First the independent effect of each independent variable was explored with each of the outcomes. A number of the demographic characteristics such as age, religion, ethnicity and region were significantly associated with primary abstinence among males and females. This was similar for the family characteristics also. The results in the quantitative study showed that older youth had lower odds of abstaining but this was different from the qualitative findings where most of the youth perceived that youth aged 18-24 engaged in more protective behaviours than younger youth, including abstinence. Our quantitative results on the relationship between age and abstinence are similar to a study in Côte d'Ivoire (Koffi & Kawahara, 2008), but we find no support for our qualitative results. We therefore suggest that perceptions may be different from actual behaviour. It is possible that youth assume their older counterparts are abstaining when they are not. Based on our results we recommend that both younger and older adolescents continue to be targeted with either primary or recent abstinence messages early (preferably in the early teenage years) and thereby strengthen their capability to refuse sex before sexual activity becomes widespread. This is important for those who have never had sex and for those that have chosen to have abstain after having sex.

9.2.1 Religion and religiosity as protective factors

Religion remains an important influence on the behaviour of young people in Nigeria. For youth development, examining a strength-based approach which underscores the importance of assets and resources present in the lives of youth is timely. Our results are similar to work (Agha, 2009) that was done using the

1999 and 2003 Nigerian Demographic and Health Surveys which showed that Muslim women in the North delayed premarital sexual activity longer compared to Christian youth in the South. This result may be due to various reasons. One could be the fact that Islam is the dominant religion in the north, which strongly restricts young people from engaging in sexual activity until marriage. This restriction can be buttressed by the early age at marriage for young females in the North. Another reason may be supported by the "Westernization hypothesis".

Religion came out strongly in the quantitative survey and the interviews with the youth. For youth, abstinence is feasible but difficult to practice. Saying no to sex can be very difficult, especially if the home environment and/or peers are less supportive. The differences observed in sexually active and inactive youth were that those abstaining appeared to be more confident, had greater determination, and were less likely to succumb to peer pressure. This strength may be internal, or gained from support in their environment. In our study, support came from parents and some messages heard in religious gatherings.

There was a positive relationship between religiosity and youth sexual behaviour at the unadjusted model. Youth who were highly religious had higher odds of abstaining. Parental religion was also associated with youth protective sexual behaviour which may be due to the fact that majority of the youth practiced the same religion as their parents in all of the states studied. This association remained the same in the adjusted model. Our findings are in support of the theoretical framework and hypothesis. They are also in support of what other studies have found in developed (Rostosky, Wilcox, Wright, & Randall, 2004) and developing countries (Odimegwu, 2005). In the moderation model, parental religion was not significant but religiosity of youth remained associated with abstinence. This implies that parent religion does not matter for sexual behaviour of youth. This could be because youth may have a stronger sense of belief at that age and may not be influenced by the religion of their

parents. It is also possible that their parent's religion influenced their sexual behaviour before the age of adolescence. It is therefore possible parental religion has an influence on behaviours but influence may be stronger at younger ages.

The religiosity of the youth may influence their decision to abstain directly based on messages they listen to at their place of worship. Youth who are more religious have a higher likelihood of adjusting to the values and norms of their place of worship. Another way in which religiosity could influence the behaviours of youth could be based on fear of sanctions placed by religious groups or leaders. Nigeria is very religious and various denominations enforce particular norms such as mode of dressing which may help protect youth from behaviours that place them at risk. Some youth who have unwanted pregnancy may be ostracized from particular groups in the church (Ajayi, Akpan, Goon, Nwokocha, & Adeniyi, 2016).

Indirectly, religiosity of youth could influence their sexual behaviour because of the time spent at the various place of worship and the activities they may engage in at these places. For instance, some churches may need the skills of young people for capacity development. These activities could be in form of workshops that are being organized for youth by the religious group. In addition, some religious organizations serve as sources of social capital for young people by sponsoring their education or helping them acquire some set skills that may keep them from risky behaviours.

The presence of parents in the household was also associated with youth sexual behaviour. Having a parent around may allow for parental monitoring which may reduce the chances of youth engaging in risky behaviours. The positive association between role models and youth sexual behaviour cannot be overlooked. These role models could also be religious leaders and youth may be inclined to follow the behaviours of their models.

9.2.2 Role models as positive influences

Researchers have increasingly become interested in the potential positive (compensatory) effects of role models on youth development outcomes. Overall, our findings indicate that having role models was associated with more positive adolescent outcomes. This finding supports the compensatory model of resilience for abstinence among youth.

Our findings are consistent with past research indicating the potential beneficial effects of role models on youth developmental outcomes, such as reduced risk behaviour (Oman, Vesely, Aspy et al., 2004; Vesely et al., 2004), more positive academic outcomes (Yancey et al., 2002), decreased aggressive behaviour (Aspy et al., 2004), and decreased anxiety and depression (McMahon et al., 2004). Our study adds to this body of work by examining role models within a resilience framework.

9.2.3 The role of parents

Parents are considered as the primary shapers in the lives of youth including sexual behaviour. They have great influence over whether youth choose to abstain or not. Youth showed awareness of the effect their parents have on their sexual behaviour. Evidence from the FGDs suggested that participants felt that parents could have either negative or positive influence on the sexual activity of their children. On one hand, children of "good" parents have good home training and would grow up to be youth who abstain until marriage, while, on the other hand, children (especially females) of "bad" parents stand a higher chance of being pushed consciously or unconsciously by their mothers into early sexual initiation. A number of the youth were also scared of their parents which resulted in their positive sexual behaviours. This has implications because it may protect youth for a short time and may not be a sustainable measure of ensuring youth engage in protective sexual behaviours. I propose that it is better youth are well informed of consequences of risky behaviours and well-equipped

with knowledge on how to engage in healthy practices in order to have a healthy sexual life.

9.2.4 Cultural differences in youth sexuality

With regards to youth sexual development and sexuality across cultures, research has revealed both commonalities and cultural specificities in different subgroups based on their cultural background and context. Cultural ideologies, such as respecting elders, sexual abstinence until marriage which differed by state influenced youth decision to delay sex or abstain and acted as resilience factors. In all of the study sites, it was noticed that the gender dynamics that influence youth protective sexual behaviours are mostly as a result of fear related to cultural norms on female submissiveness. Cultural gender norms were also reinforced differently for the youth in different states. For example, youth in Kano exhibited resilience for different reasons compared to the youth in Edo and Enugu. Due to youth's desire to adhere to Islamic cultural and gender norms, some youth in Kano remained submissive and trusted their religious beliefs when making decisions about abstinence. This resulted in more youth abstaining from the selected sites in Kano.

9.2.5 Neighbourhood characteristics

Most sexuality research, especially studies of youth in Nigeria, lay emphasis on individual characteristics associated with protective sexual behaviours. As a result, we know comparatively little about contextual determinants of protective sexual behaviours in Nigeria. Knowledge gained from understanding the community characteristics influencing youth sexual behaviour is important for the design of context-specific sustainable policies to address sexually transmitted infections among youth. Our findings showed the significance of neighbourhood characteristics for protective sexual behaviours among youth.

The importance of education at the community level has been emphasized for healthy behaviours. This is because education at the community level is characterized by the place of residence and the knowledge available to a young person in that community. A community with a high proportion of educated women may signify access to friendly and accessible reproductive health care services. Education leads to diffusion of ideas and the ability of members of the community to be able to deal with organizational challenges and strategies that will sustain professional expertise on youth related issues. This could be due to the fact that educated women may better understand the importance of educating youth on sexual and reproductive health practices and methods to keep them from sexually transmitted infections. It could also translate into more economic opportunities or social capital, which may be protective for youth. Another protective variable at the community level was the proportion of women engaging in single sexual partnerships. This could be due to the fact that young people are likely to model the behaviours of their peers. For instance, if staying faithful is the norm in a community, this could influence the youth to engage in other protective behaviours.

9.4 Contribution to theory

This study was conducted with theoretical foundation on the ecological framework and the risk and resilience framework. The former was used because factors that influence youth sexual behaviours do not operate at the individual level alone but also at other levels such as the family, school, and community level. The latter was used as it best answered the question of risk, vulnerability, and resilience among youth in Nigeria. Both theoretical frameworks contributed to the development of hypotheses that express relationships between the selected characteristics of the neighbourhood context and protective sexual behaviours among youth as tested in this study. Contributions of the findings of

this study to theory will be considered under three elements as proposed by Whetten (1989): what, how, and why.

'WHAT' – The first component of a good theory, 'what', refers to the identified and specified concepts or variables. As earlier indicated, the ecological framework posits that protective sexual behaviour among youth are influenced by factors at the individual, family, and community levels. The risk and resilience framework explained that these factors could act as risk or protective factors in the lives of youth. According to this framework, some of the factors could act as both risk and protective concurrently or they could as compensatory factors in the presence of risk factors. At the individual level, the risk factors were low academic achievement and place of residence. Protective factors at this level also included place of residence, religiosity, self-efficacy, and self-esteem. At the family level, parental monitoring was considered a risk and protective factor in the lives of youth while parent-child communication was considered a protective factor. Presence of role models, cultural norms of faithfulness to one partner and community social capital were considered protective factors at the community level. Access to drugs and alcohol in the community and cultural norms were risk factors at the community level.

Principally, the focus of the present study was to examine the individual and contextual risk and protective factors associated with protective sexual among youth in vulnerable situations. Based on this focus, most of the hypotheses tested focused on the relationship between these factors and protective sexual behaviours among youth. The selected characteristics at different levels were either protective in the lives of youth or acted as compensatory factors for youth protective sexual behaviours.

The results of the hypotheses test in this study seem to be in consonance with the two frameworks used and strongly confirms that factors that influence youth behaviours operate at different levels. For instance, self-efficacy was

associated with negotiation of condom use, presence of parents in the households compensated for low social capital in the community and having a role model in the community had a protective effect on youth sexual behaviour.

'HOW' and 'WHY' components are usually used to justify and provide brief explanation of the contributions to theory. While the second component of a good theory – 'how' refers to the relationship between variables or concepts, the third component – 'why' refers to the explanations for the theorized relationship (Whetten, 1989).

Having built on my frameworks, the risk and resilience theory suggested that risk and protective factors can operate at the same time to influence youth sexual behaviours. The results confirmed this operation and showed the mechanisms through which it may occur. For instance, church attendance was a way that religiosity influenced protective sexual behaviour of youth. Although some of the messages in religious spaces were inaccurate (for example, the pastor saying sexual intercourse leads to loss of genitals), attending services frequently exposes youth to messages that may enable them make protective choices for their sexual health.

WHO/WHERE/WHEN – The fourth element of a good theory involves the three questions of 'who, where and when'. These questions allow for the bounding contextual conditions or situations under which the theory operates (Whetten, 1989). Results of the present study provide empirical explanations for why there are variations in protective sexual behaviours of youth in Nigeria and within the study sites. However, irrespective of youth involved, location or period, resilience can be demonstrated among youth and also strengthened in the presence of various factors and in different ways. This is because abstinence-

only education might be helpful in some contexts and counterproductive or even harmful in other contexts.

9.5 Conclusion

Our results are important for policy makers and HIV prevention programmers who promote delay of first sex as an additional HIV prevention strategy. It also supports the ecological and normative climate theories that posit that youth sexual behaviour is influenced by factors existing in the environment and not the individual factors alone.

Our results showed that youth sexual and reproductive health can influence to their sexual resilience. This was corroborated by that fact that the sexual and reproductive health life course of Nigerian youth contributed to them having a higher knowledge of the risks associated with sexual activity, as highlighted by several participants.

Current, abstinence-based models of SRH education in Nigeria do not address the sociocultural and structural factors that shape youth individual choices and consequently their risk negotiations and resilience. Although some youth are demonstrating resilience, the dearth of education concerning sexual wellbeing, including topics such as sexual consent, sexuality, desire and respectful relationships, represents a significant gap in current SRH education in Nigeria. This is the first study undertaken to highlight this gap and can serve as a framework to improve the sexual and reproductive health of youth in Nigeria. Consequent studies can follow up from this to better understand how to design effective interventions that promote resilience among youth.

Our study adds to the body of research on role models and resilience by focusing on a wide range of youth sexual behaviour in a large sample of Nigerian youth. Collectively, our findings indicate that role models can help youth overcome the risk they face by being exposed to negative non-parental adult behaviour.

Although role models played different roles for different adolescent psychosocial outcomes, overall, the results support resilience theory. Having someone to look up to appears to be an asset for adolescents, but this asset may not be universally applicable to all adolescent outcomes. Our findings are consistent with the notion that adults may be vital resources to help protect youth from the noxious effects of risk they face (Fergus & Zimmerman, 2005).

Our findings also suggest efforts to develop or improve adolescent-adult relationships may be beneficial. Considering that most adolescents in our study identified at least one person who they look up to and that these role models were mostly adult relatives, it is vital that parents and family members model prosocial behaviour for their adolescent children (Hartos & Simons-Morton, 2002; Simons-Morton, Hartos, & Haynie, 2004). They can also help encourage their adolescent children to identify positive role models both within and outside of the family. Our results suggest that interventions that help adolescents understand how adult relationships can be helpful to them and provide them with strategies for developing such relationships may be warranted. Providing youth with skills for selecting positive adult role models may be an effective strategy for positive youth development and help youth avoid the adverse effects of negative non-parental adult influences they may experience.

Overall, protective sexual behaviours should be discussed as normative behaviours that will protect youth and their sexual partners.

9.6 Implications for policy

The impact of insufficient education on protective sexual behaviours and ways to negotiate sexual risk among youth was evident in several youth chronicles in chapter 7. Several youths had knowledge on how to get themselves away from situations that may put them at sexual risk by pacing themselves when drinking in parties to avoid unwanted sex; having condoms when visiting their sexual

partners and educating sexual partners before going into romantic relationships. This implies that youth can be useful in the design of interventions that aim to promote positive youth development. They can teach other youth ways to manoeuvre risk in everyday life.

At an individual level, improving the sexual and reproductive health knowledge, and self-efficacy of Nigerian youth regarding condom negotiation are important elements that may reduce their sexual risk and strengthen sexual resilience. Interventions should increase access to comprehensive sexuality education and focus on addressing abstinence, SRH knowledge, low condom use and HIV/STI testing.

Religiosity was strongly associated with youth protective sexual behaviour among youth sampled in this study. This implies that youth should be presented with various religious events that can improve their spiritual development. These activities could be in form of active youth groups that engage in sports, music or arts. Older youth in these religious spaces should also be readily available to mentor younger youth and support them in other ways which could be financial.

Peer influence was also important for resilience among youth. This highlights the importance of peer education approaches in schools and communities aimed at strengthening the sexual resilience of Nigerian youth by increasing their knowledge on access of SRH information and services. The knowledge sharing among peers gives youth the opportunity to avoid shame that may be associated with accessing SRH services in public spaces like pharmacies and other sexual and reproductive health centres that are not youth friendly.

Interventions aimed at promoting abstinence must take gender into account based on the gender differences in the perception of timing of sexual debut among youth. These interventions also have to consider the daily challenges youth face and offer them valuable skills on how to maneuverer pressures they

face in their different settings. These programs and policies must move away from linear approaches encouraging delay and understand that there are complex issues that need to be addressed at different levels. Such programs must incorporate skills that enhance the self-esteem of youth and good mentorship programs at different communities to ensure follow-up of kids already engaging in protective sexual behaviours. This study highlighted the fact that for some girls their first sex was rape; there is the need for the issue of sexual violence perpetrated against these vulnerable groups to be addressed through health campaigns. These health campaigns could be in form of media awareness of what sexual coercion is and what consent is for both males and females. Programs must be focused on teaching youth skills that help them manage sexual coercion and report sexual violence when it occurs. Given the cultural taboos associated with SRH issues and the collective nature of social relations in Nigeria, providing youth in Nigeria with anonymous and discreet access to SRH information is imperative. These programs have to be context specific and could be in the form of scaling up peer education outreach activities, providing a dedicated space on campus for peer educators to operate, and development of culturally and gender sensitive SRH resources specifically for youth.

Beyond the individual level, it is important that family and elders play a role in building the sexual resilience of youth in Nigeria. Several youths confirmed the importance of family and elders in fostering sexual resilience among young people during the FGDs and IDIs. Increasing dialogue between young people, elders/parents and the public health sector is vital for fostering sexual resilience among youth in Nigeria. Such dialogues should include a discussion about the risk factors youth prioritise in their hierarchies of risk and ways to address these risks.

The difference in protective sexual behaviours by demographic and socio-economic characteristics for the different datasets suggest that factors that

influence protective sexual behaviours among youth vary over time and between ethnic groups. It is therefore important that program managers design context specific interventions aimed at strengthening resilience among youth in Nigeria. There is also a need for continuous research and literature on trends and patterns of protective sexual behaviours among youth disaggregated by different socio-demographic characteristics.

9.7 Limitations

Several limitations of our study should be noted. Our quantitative findings can only be discussed as associations and do not provide information regarding causality. The confidence interval for a number of our sexual behaviour measures were large. It was likely driven by overall low sample of youth engaging in protective sexual behaviours in that particular survey year (2003). However, this also could be due to the fact that the true value of the effect is still large at either end of the confidence interval. Therefore, the adjusted odds ratio estimate should be interpreted with caution.

The cross-sectional nature of the study limits our ability to make inferences about causality. The study lacked temporal directionality of independent and dependent variables and it was impossible to randomize on the independent variables. This implies that I was not able to establish how other events may have influenced youth sexual behaviour during their life course.

Nevertheless, we did control for confounding variables leading to spurious correlation (gender, socioeconomic status, family structure, and parental support) that helped to isolate the relationship between independent variables and youth sexual behaviour. Future research that uses longitudinal designs will help address this issue.

Another limitation on the role models is that our measure did not provide more detailed information about the role model-youth relationship. Additional information on the duration, nature, or quality of the relationship participants had with the identified role models would help provide a clearer picture of how role models may influence youth development. This information would allow us to study the potential effects of role model qualities and frequency of contact with the role model. Nevertheless, our study suggests that role models have a powerful influence on youth development and that continued research to further understand this relationship is warranted.

Another important aspect of the role model that we did not ask about is the role model's behaviour. Our results seem to imply that the identified role models were likely modelling positive behaviour because they appeared to be contributing to positive adolescent outcomes, however, we cannot be sure of the behaviour being modelled by the role models in our study because we did not assess their behaviour. The type of behaviour being modelled could have an important effect on youth sexual behaviour. If role models are modelling negative behaviour, we would not expect them to contribute to positive adolescent outcomes. Despite our limited measure of role model, our findings do suggest that having someone to look up to can protect youth from negative outcomes associated with exposure to unconducive environments.

Another study limitation is our reliance on self-report data. All of the data collected in this study were based on youth self-report. It is possible that adolescents may have underreported some of their externalizing and/or internalizing behaviours due to the interview format in which these data were collected. Nevertheless, this underreporting would likely only serve to reduce the variance in our outcome variables, thus making it more difficult to detect the effects of independent variables on our outcome. Furthermore, we have no reason to believe that social desirability effects would have been any different

for participants with role models and those without, suggesting that social desirability likely did not differentially affect our results.

The generalizability of our findings are also limited given our recruitment catchment areas. Although we sampled four states from the different regions in Nigeria, which may be broadly representative of Nigeria, they remain nonetheless only four of the 36 states in the country. The sexual behaviours of the youth in other states may differ.

The outcome variable may have been influenced by social desirability bias as women are expected to remain virgins before marriage in most part of the country. Nevertheless, the use of ODK helped put the participants at ease as they filled the questionnaires on the phones themselves.

Also, the study was conducted among youth recruited using non-probability sampling methods from different locations where youth congregate and we could not obtain cluster sizes for youth in these locations.

Future efforts may benefit from structural equation modelling approaches using latent variables to account for these concerns. These studies should also assess longitudinal patterns of protective sexual behaviours and their contribution to resiliency research. Though our sample is socioeconomically diverse, future studies should seek to replicate our analyses with other community samples of youth in Nigeria and sub-Saharan Africa.

Despite these limitations, our study has notable strengths. Our study acknowledged calls-to-action that emphasize the importance of resilience frameworks when contextualizing sexual behaviours among youth in Nigeria. In addition, it accounted for youths' embedded individual and interpersonal strengths that may elucidate how resilience manifests within socioeconomically stressful contexts. To my knowledge, this study is the first to examine protective sexual behaviour among youth in Nigeria by integrating the ecological

framework in addition to the risk and resilience theoretical approaches. It showed the interactions between personal strengths, family resources, and socioeconomic disadvantage which enabled me to establish the relevance and importance of these constructs in assessing protective sexual behaviours among youth. Lastly, my findings support the general body of work that continues to demonstrate that resilience is an important and prevalent characteristic of protective sexual behaviour among youth despite risky environments. These findings could also inform the decision of local community organizations and youth program planners to support and build health promotive factors in Nigerian youth.

APPENDIX

A.1 Appendix A: Policy Brief

Risk and Resilience in Sexual Behaviour among Youth in Nigeria

(This has been sent to the Population Reference Bureau (PRB) and will be sent to the Nigerian Government)

A.1.1 Summary

Non-consensual sex is prevalent across the world and a major public health concern (Richter, Mabaso, Ramjith, & Norris, 2015; Stanley et al., 2018). Many youth are being coerced into first sexual intercourse without their knowledge. This results in poor sexual and reproductive health outcomes for young people (Agardh, Odberg-Pettersson, & Östergren, 2011). The percentage of young adults who have experienced coerced sexual intercourse may be difficult to estimate. This is because young adults may be scared of social stigma associated with reporting and may even lack the necessary support even after reporting. In addition, some young adults may not know they have been coerced into sex.

Coerced sexual intercourse is rape even when it does not get physical or violent. This is mostly perpetuated by intimate sexual partners and usually takes place under the influence of alcohol, watching pornographic material together or blackmail. In the present study, 15% of the 758 youth who had ever had sex reported it was forced. Young adults coerced into sex may not have the opportunity to negotiate condom use which may result into sexually transmitted infections and/or unplanned pregnancies. These have different implications for the emotional and physical well-being of youth. The gender inequality that exists in sexual behaviour of young adults also helps perpetuate coerced sexual intercourse. This is because young girls are seen as sexual objects and young males are not taught to respect females' decision to say "no".

It is recommended that gender norms that promote coerced sexual intercourse need to be addressed at the family and community level so males can understand the negative effects of these behaviours. Equipping girls with knowledge on how to recognize abusive relationships enable them to make good choices about relationships.

A.1.2 Background

Coerced sexual intercourse is not only a violation of human rights, but also a public health problem among young adults aged 15-24; particularly, in Nigeria where about one third of the population is aged 15-24 i.e. about 60 million people. Although there is a growing body of research examining the burning issue among adolescent girls, only a small number of studies address intimate partner sexual violence in settings where early marriage is common, and/or sex that may not be seeming as forced, but unwanted. For instance, a study using nationally representative data in sub Saharan Africa (SSA) found that coerced sex ranged from 15% in Burkina Faso, 23% in Uganda, 30% in Ghana and 38% in Malawi (Moore, Awusabo-Asare, Madise, John-Langba, & Kumi-Kyereme, 2007). Another population-based survey of young adults in Kenya found 20.8% of females and 11.0% of males had experienced coercive sex (Erulkar, 2004) while a study in Ibadan among secondary school students reported that about 36% of youth had experienced some form of coercion (Ajuwon, Olaleye, Faromoju, & Ladipo, 2006).

A.1.3 Nigerian culture and coerced sexual intercourse

Sexual abuse is rampant in Nigeria although the magnitude of the problem is unknown due to reporting challenges. The abuse occurs in various forms which include sexual harassment, unwanted sexual contact, coercion, rape and incest. Usually, perpetrators are not strangers but often relatives and close friends. Young females happen to be the most at risk in Nigeria. It has been documented that gendered social norm beliefs about romantic relationships between males

and females influences the decision to label and/or prosecute coerced sexual intercourse. For example, in a number of communities, when a girl mentions that she has been raped, people unconsciously search for a cause and blame the girl instead of addressing the fact that she has been coerced into sexual intercourse. This approach has influenced the way girls view coerced sexual intercourse. This type of community disposition can prevent policy makers from tackling coerced first sex among youth in Nigeria.

Existing policies are not being fully implemented. For example, the Family Life and HIV/AIDS Education (FLHE) curriculum and program, which was launched in 2002 and implemented by state Ministries of Education with the support of other government agencies and international partners, aimed to incorporate sex education into junior secondary school curriculum across the country. However, uptake of the curriculum has been slow as it has only been effected in 10 of the 36 states (Sedgh et al., 2009). Some of the other available policies like the FLHE have targeted "in school" youth and have failed to consider "out-of-school" youth, vulnerable youth and those in rural settings.

A.1.4 Key findings

As shown in figure 1, about one out of seven youth had experienced coerced first sex.

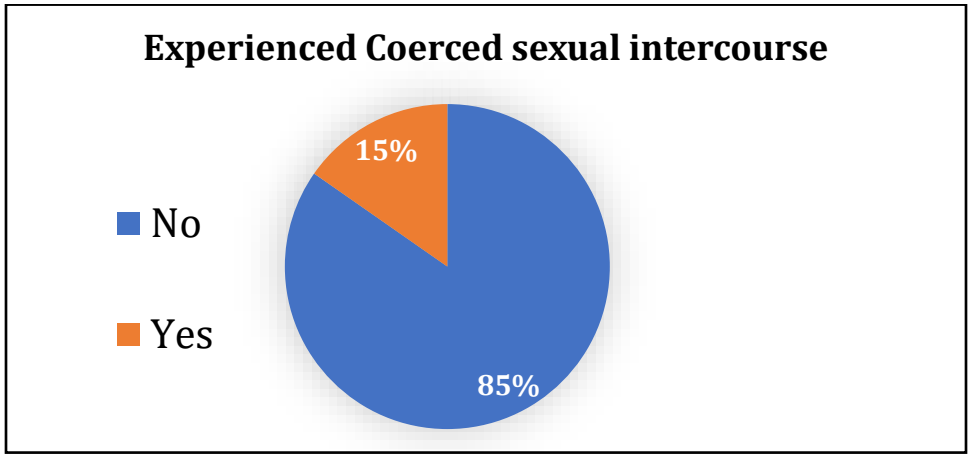

Figure 3: Percentage of youth by coerced sexual intercourse

On interaction with some of the youth, it was found that most of the young girls were coerced by their intimate sexual partners or friends who they trusted. The coercion took place under the influence of alcohol or times when girls visited friends at late hours and could not go home. Some of the key themes found are discussed below:

Gender differences

All of the youth who experienced coerced sexual intercourse were females. Although some males were aware of women's coercion towards men, none of them had ever experienced it. However, some of the males interviewed reported that they had persuaded their partners to have sex with them. They didn't believe it was coerced although they agreed it took some time for the females to agree to having sex.

Young girls are unable to protect themselves

Although a large number of young adults had knowledge on avoiding STIs and unplanned pregnancies, they were often unable to negotiate their use with their partners especially when the sex was coerced. For instance, one of the respondents stated that:

"I didn't want to have sex with him that day, I wanted to wait till my 18th birthday, but he refused…. I asked him to please use a condom but he said he didn't have time for that" (15, female, rural area, Enugu)

Fear of reporting

Some of the girls were not aware that coerced sexual intercourse was wrong. They did admit they didn't want to have sex at that time, but they saw nothing wrong in being forced. When asked why these partners were not reported, most of the girls were afraid of what people would say about them visiting their

partners especially during “odd” hours. Most of them also said they were likely to get blamed if they reported.

A.1.5 Policy implications

The results imply that young girls are vulnerable to coerced sexual intercourse in Nigeria. This implies that existing sexuality education programmes are not very effective enough in increasing girls understanding of their freedoms and rights; it is also not being effective in tackling gender norms that predispose girls to sexual abuse. This vulnerability exposes them to many SRH challenges including sexually transmitted infections (which can cause cervical cancer and infertility) including HIV, unintended pregnancy which can possibly lead to unsafe abortion and as a consequence morbidity and even mortality, as well as the onset of risk-taking behaviours including other non-consensual sexual experiences, multiple partnerships and unprotected sex.

A.1.6 Looking ahead

Invest in prevention and training

- It is recommended that Ministers of Health, Information and Education ensure relevant and high quality sex education explains what coerced sexual intercourse means to both in school and out of school male and female youth. The educational activities which could be in form of print media and fact sheers can target out of school youth in the malls and informal youth forums.

Improve disclosure

- It is recommended that victims have adequate information on how to report coerced sexual experiences. Victims should be encouraged to talk about their experiences by de-stigmatizing this issue and making community based services that will help young people talk about these

issues should be easily accessible. This can be achieved by creating women-centred institutions that can offer immediate support to young girls that have experienced coerced sexual intercourse.

Criminalize coerced sexual intercourse

- There should be an accountability system in place at the community level that enables the effective prosecution of perpetrators, which will serve as a restrictive strategy and expectantly prevent other females from falling victim. This can be achieved by ensuring that policy makers at all levels listen to young females who report that they have been coerced into sexual intercourse. In addition to listening, they should be required to avail them young women the necessary support.

Engage local stakeholders

- At the community level, there should be social awareness and educational programs which foster changes in gender norms which discriminate against girls and women and push young men into risky sexual activity early in life. It is recommended that community leaders demonstrate understanding of policies that protects girls against coerced sexual intercourse.

Availability of precise data

- The question on coerced first sex in the nationally representative data for Nigeria is missing. It would be important to have this included to examine deeply areas where this is more prevalent. It is recommended that this question be included in the Nigerian Demographic and Health survey which captures information at the national level. At the local level, different states and wards should ensure that reported cases are captured and reported in a central system. Other non-governmental organizations that collect routine data can should also use routine

surveys to collect data on youth experiences of coerced sexual intercourse, perceptions and confidence in local authorities with regards reporting coerced sexual intercourse.

Key definitions:

Coerced sex is the persistent use of pressure, alcohol or drugs, or force to have sexual contact with someone against his or her will when the person has already refused.

A.2 Appendix B:

A.2.1 Screening Questionnaire for FGDs and IDIS

1. Name of Town ……
2. Name of Village ……..
3. Place of recruitment ……..
4. Nick name for purpose of study ……..
5. Sex ……..
6. What is your age (at last birthday) ……
7. What is your current schooling status (interviewer tick one) (1) in-school (2) out-of school
8. If out of school, record grade level (1) Primary …….. (2) Secondary …….. (3) Post secondary ……..
9. If out of school record status (interviewer tick one):
   (a) Never been to school
   (b) Left school less than a year ago
   (c) Left school a year or more
10. Marital status (interviewer tick one): (1) Married (2) Single
11. Ever had a child (interviewer tick one): (1) Yes (2) No

A.2.2 Focus Group Discussion Guide

Study Title: Beyond Risk: Understanding a Framework for Improving Adolescents' Sexual Health in Nigeria

Principal Investigator: Somefun Dolapo Oluwaseyi

Warm-up and explanation

A. Introduction (by me, the moderator)

"You are all welcome to the venue of this discussion. We are happy that you are able to spare some time to come have this discussion. Let's begin by introducing ourselves."

Introduce study. Sign consent forms. Invite participants to introduce themselves to the group, their nick name or what they want to be called and their favourite hobbies.

Explain the importance of only one person talking at a time in a clear voice. Share a story about two fictional adolescents in a relationship. Begin recording.

B. Purpose of the discussion

All the issues that we will be discussing are of importance for youth in your community. Some of the issues that we will be discussing are perception of sexual activities knowledge about reproductive health information and services, perception of sexual behaviours. We are interested in your ideas, perceptions and comments. All information will be treated as confidential (3 minutes).

C. Explain ground rules for discussion

We would like you to have a friendly discussion amongst yourselves about these issues. There is no right or wrong answer. Everyone should feel free to air his/her views and opinions. We would have one speaker at a time and there

should be no side discussions during the session. Anyone can contribute to the discussion at any time. You should feel free to agree or disagree in a friendly manner. We are asking for your permission to tape the discussion (3 minutes).

Youth Behaviours [30 minutes]

Tell a story about young people in love and things they do together.

Ask; do you think the young adolescents in the story should engage in sexual activities?

1. **Activities engaged in (including sexual activity)**

Young people your age usually engage in many activities. We would like you to tell us the kind of activities that young people in this community do during free time?

Probe (if not mentioned) ask about sexual activities, types of sexual activities and relationships and terms used to describe them, types of sexual partners, location and events surrounding sexual activities, and consequences of sexual activities. Why do some youth engage in these behaviours? Why do some youth avoid these behaviours?

Probe: why do some youth abstain, use condoms or have one sexual partner?

What kinds of young people believe in abstaining?

Do you think living in this community plays a role in the sexual attitudes of the young people?

How do friends in the community encourage one another to abstain, use condoms or stay faithful to their partners?

What resources are available to the young people who want to reduce sexual risk?

Probe: to get at situation for those who are unmarried and those who are married.

(About 20-25 minutes on this section)

2. **Sexually Transmitted Infections**

Are young people in this community aware about sexually transmitted infections?

(Moderator: if possible, use local terminology to describe STIs). What signs or symptoms may tell young people that they or their partners have sexually transmitted infections? (*Moderator, ask this question only if participant did not mention STI in section one, otherwise make a smooth transition from there*).

Probe: where or from whom do they learn about this, names given to symptoms, and what do adolescents do when they have symptoms

(About 15 minutes on this section)

3. **Health Services**

We would like to know from you whether youths your age seek reproductive health services. Do young people of your age seek health services concerning pregnancy or abortion, HIV, STIs, or contraceptives?

Probe: What types of services available/not available to young people, what types of providers are accessible and affordable, where do young people prefer to go for such services, what do they or their friends like and dislike about the services, what services do they or they friends prefer, whether they or their friends know about VCT (voluntary counselling and testing for HIV), access to VCT services, and advantages and disadvantages of VCT.

Probe: for sources that are outside of the formal medical care system (traditional healing, faith-based treatment, and other forms of alternative medicine).

(About 20-25 minutes on this section)

4. Perceptions and management of risks

Some youth think they can't get pregnant, contract HIV, and STIs while others think they can. Do youth like you think these can happen to them? We would like you to tell us what youths your age considers sexual behaviours?

Probe: risky and protective sexual behaviours, what kinds of situations and factors decrease young peoples risk of HIV and STIs, what do young people like you see as ways of protecting yourselves from HIV and STIs, and of prevention (probe about abstinence, fewer sexual partners and condom use); risk of unplanned pregnancy, perceptions about young unmarried pregnant girls, perceptions about unmarried adolescent fathers.

(About 20-25 minutes on this section)

5. Information about reproductive health

We would like to know about the types of sexual and reproductive health information that are available to young people your age in your community. From where do they get this information?

Probe: formal and informal sources, who do young people talk to about this topic (probe about parents and other adult relatives, peers, sexual partners, media, teachers, health providers); how often do they discuss these issues; preferred sources, problems with access to information, the types of

information they would like/not like, preferred medium of delivery; are some sources better/more accurate than others?

(About 20-25 minutes on this section)

6. **Communication about problems related to sexual and reproductive health**

When youth your age have questions/problems about relationships with girls/boys whom do they discuss with?

Probe: people that they discuss SRH issues with, people that they prefer to discuss SRH issues with (parents, teachers, health workers, peers, partners, religious leaders, etc), what makes youth talk to or not talk with parents, peers, teachers and counsellors, youths ability to negotiate safe sex

(About 20-25 minutes on this section)

Thanks you for taking the time to discuss with us issues affecting youth.

Conclude: Thank participants.

University of Witwatersrand (WITS)

Appendix B: In-Depth Interview Guide

Study Title: Beyond Risk: Understanding a Framework for Improving Adolescents' Sexual Health in Nigeria

Principal Investigator: Somefun Dolapo Oluwaseyi

A. Interviewers Instruction

The first broad question in each section is your introduction that you want your informant to provide information on. You must allow a few seconds for your

informant to think before responding to the question. Never introduce your probes without first, giving your informant the chance to provide information on the broad question. Also, take each probe one at a time. If the informant mentioned something related to one of your probes while answering the broad question, follow on that with the appropriate probe irrespective of whether the probe is the first or last. This interview must be conducted in conversational format (not question and answer session) and the probes should be introduced in a way that they ensure a continued flow of information between you and the informant (3 minutes).

B. Purpose of the interview

During the course of this interview, we would like to have your honest opinions on a range of issues that affect young people your age. We would like you to give us insight into the sexual and reproductive health of youth based on your own experience and your opinions. The information you provide will be strictly confidential, and will be used for research purposes only and will not be linked to you in any way. Do I have your permission to proceed with the interview (3 minutes).

Theme 1: Demographic Information

What has it been like for you here in this community?

Please tell me about your background.

Probe for

- Gender
- Date of birth

- State of origin
- School/work history
- Family information
- Religion
- Members of household
- Number of rooms in the house
- Have you always lived here? Where were you born? Did you recently move here?

Theme 2: Family

- Who lives at home with you?
- Where are your parents? Why don't you live with them?
- How many siblings do you have? Where do they live? What do they do?
- What is your birth order?
- Who takes care of you? Who are you closest to?
- Who do you talk to if you need help? Who can you talk to if you are feeling sad?
- Describe that person.
- Describe their behaviour and personal characteristics.
- How do they discipline you? What do you think about it?
- Where are your parents (if not living with them)? Describe your parents. How are they different from the person you are living with?
- Describe yourself. How would your family describe you?
- How are you like your mother/father? How are you different?
- What are you most proud of about yourself?

Theme 3: School:

Do you go to school?

If yes:

- What grade are you in school?
- Why do you attend private school?
- What do you do at school?
- Do you like school? What do you like about it?
- What is your best subject?
- What do you like about it?
- Which subject is most difficult?
- What is difficult about it?
- How do you manage when you are struggling? How do you react if you fail?
- Where do you go for help?
- How do you do your schoolwork?
- How much time do you spend? Is that enough? If not, what keeps you from spending more time?

If no:

- Did you ever attend school?
- What was the last grade you completed?
- Why did you leave?
- Do you want to go (back)? Do you think that will happen?

Probe for

- Personal motivations
- Future aspirations
- Supports received
- Current activities

Theme 4 Daily life:

- What do you do during the day?

- How do you earn money?
- How long have you been doing this?
- How did you start doing it?
- What do you think about it?

Theme 5: Sexual Behaviours

- What do you think about abstinence?
- Do you think its ok to have multiple sexual partners?
- Do you think its ok to use condoms?
- Why have you decided to abstain?
- Do your friends sometimes laugh at you based on your decision to abstain?
- What do your friends think about condom use?
- What do your friends think about being faithful?
- Would you say it's easy to stay faithful in your community?
- Do you think your family or religion has an influence on your decision?

A.2 Appendix C: Field Pictures



















REFERENCES

AbdAleati, N. S., Mohd Zaharim, N., & Mydin, Y. O. (2016). Religiousness and Mental Health: Systematic Review Study. *Journal of Religion and Health, 55*(6), 1929-1937. doi:10.1007/s10943-014-9896-1

Abiodun, O., Sotunsa, J., Ani, F., & Jaiyesimi, E. (2014). Knowledge of HIV/AIDS and predictors of uptake of HIV counseling and testing among undergraduate students of a privately owned university in Nigeria. *BMC research notes, 7*(1), 639.

Abma, J. C., Martinez, G. M., & Copen, C. E. (2010). Teenagers in the United States: sexual activity, contraceptive use, and childbearing, national survey of family growth 2006-2008. *Vital and health statistics. Series 23, Data from the National Survey of Family Growth*(30), 1-47.

Aboki, H., Folayan, M. O., Daniel, U., & Ogunlayi, M. (2014). Changes in sexual risk behavior among adolescents: is the HIV prevention programme in Nigeria yielding results? *African journal of reproductive health, 18*(3), 109-117.

Addo, F. R., Sassler, S., & Williams, K. (2016). Reexamining the Association of Maternal Age and Marital Status at First Birth With Youth Educational Attainment. *Journal of Marriage and Family, 78*(5), 1252-1268.

Adebowale, S. A., Ajiboye, B. V., & Arulogun, O. (2013). Patterns and correlates of condom use among unmarried male youths in Nigeria: NDHS 2008. *African journal of reproductive health, 17*(3), 149-159.

Adegoke, C. O., & Steyn, M. G. (2017). A photo voice perspective on factors contributing to the resilience of HIV positive Yoruba adolescent girls in Nigeria. *Journal of adolescence, 56*, 1-10. doi:http://dx.doi.org/10.1016/j.adolescence.2017.01.003

Agardh, A., Odberg-Pettersson, K., & Östergren, P.-O. (2011). Experience of sexual coercion and risky sexual behavior among Ugandan university students. *BMC public health, 11*(1), 527.

Agha, S. (2009). Changes in the timing of sexual initiation among young Muslim and Christian women in Nigeria. *Archives of sexual behavior, 38*(6), 899.

Agha, S., Hutchinson, P., & Kusanthan, T. (2006). The effects of religious affiliation on sexual initiation and condom use in Zambia. *Journal of Adolescent Health, 38*(5), 550-555.

Ahonsi, B. (2015). Commentary: Accelerating the quest for integrated and comprehensive sexual and reproductive health services in Nigeria. *Global Public Health, 10*(2), 174-176.

Ajayi, A. I., Akpan, W., Goon, D. T., Nwokocha, E. E., & Adeniyi, O. V. (2016). Tough love: socio-cultural explanations for deadly abortion choices among Nigerian undergraduate students: health. *African Journal for Physical Activity and Health Sciences (AJPHES), 22*(Issue-31), 711-724.

Ajayi, A. I., & Somefun, O. D. (2019). Transactional sex among Nigerian university students: The role of family structure and family support. *PloS one, 14*(1), e0210349.

Ajuwon, A. J., Olaleye, A., Faromoju, B., & Ladipo, O. (2006). Sexual behavior and experience of sexual coercion among secondary school students in three states in North Eastern Nigeria. *BMC public health, 6*(1), 310.

Akande, T. (2013). Youth Unemployment in Nigeria: A Situation Analysis. Retrieved from https://www.brookings.edu/blog/africa-in-focus/2014/09/23/youth-unemployment-in-nigeria-a-situation-analysis/

Akarro, R. R. J. (2009). Some factors associated with condom use among bar maids in Tanzania. *Journal of biosocial science, 41*(1), 125-137.

Alvord, M. K., & Grados, J. J. (2005). Enhancing resilience in children: A proactive approach. *Professional psychology: research and practice, 36*(3), 238.

Amaugo, L. G., Papadopoulos, C., Ochieng, B. M. N., & Ali, N. (2014). The effectiveness of HIV/AIDS school-based sexual health education programmes in Nigeria: a systematic review. *Health education research, 29*(4), 633-648.

Amoateng, A. Y., & Kalule-Sabiti, I. (2016). Biosocial correlates of age at first sexual intercourse: The case of grade 9 and grade 11 pupils in the north west province of south Africa. *Journal of biosocial science, 48*(01), 20-36.

Angotti, N., Dionne, K. Y., & Gaydosh, L. (2010). An offer you can't refuse? Provider-initiated HIV testing in antenatal clinics in rural Malawi. *Health Policy and Planning, 26*(4), 307-315.

Annabel, S. E., & Mairo, B. (2007). The experience of married adolescent girls in northern Nigeria. *Population*.

Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., . . . Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatr Dis Treat, 9*, 449-461.

Asante, K. O., Osafo, J., & Doku, P. N. (2016). The role of condom use self-efficacy on intended and actual condom use among university students in Ghana. *Journal of community health, 41*(1), 97-104.

Babalola, S., Awasum, D., & Quenum-Renaud, B. (2002). The correlates of safe sex practices among Rwandan youth: a positive deviance approach. *African Journal of AIDS research, 1*(1), 11-21.

Baldwin, W. (2011). Creating 'safe spaces' for adolescent girls. *Promoting Healthy, Safe, and Productive Transitions to Adulthood. Brief*(39).

Bamgbade, E. O., & Saloviita, T. (2014). School performance of children from monogamous and polygamous families in Nigeria. *Journal of Black Studies, 45*(7), 620-634.

Bandura, A. (1986). Social foundation of thought and action: A social-cognitive view. *Englewood Cliffs*.

Bandura, A. (1997). *Self-efficacy: The exercise of control*: wH Freeman New York.

Bandura, A. (2004). Health promotion by social cognitive means. *Health education & behavior, 31*(2), 143-164.

Bigombe, B., & Khadiagala, G. M. (2003). Major trends affecting families in Sub-Saharan Africa. *United Nations Department of Economic and Social Affairs, ed. Major trends affecting families: a background document. New York: United Nations*, 164-187.

Billy, J. O. G., Brewster, K. L., & Grady, W. R. (1994). Contextual effects on the sexual behavior of adolescent women. *Journal of Marriage and the Family*, 387-404.

Bloom, D., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change*: Rand Corporation.

Blum, R. W. (2007). Youth in sub-Saharan Africa. *Journal of Adolescent Health, 41*(3), 230-238.

Blum, R. W., Bastos, F. I. P. M., Kabiru, C. W., & Le, L. C. (2012). Adolescent health in the 21st century. *The Lancet, 379*(9826), 1567.

Brody, G. H., Conger, R., Gibbons, F. X., Ge, X., McBride Murry, V., Gerrard, M., & Simons, R. L. (2001). The influence of neighborhood disadvantage, collective socialization, and

parenting on African American children's affiliation with deviant peers. *Child development, 72*(4), 1231-1246.
Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. *American psychologist, 32*, 513-531.
Bronfenbrenner, U. (1992). *Ecological systems theory*: Jessica Kingsley Publishers.
Brooks-Russell, A., Simons-Morton, B., Haynie, D., Farhat, T., & Wang, J. (2014). Longitudinal Relationship Between Drinking with Peers, Descriptive Norms, and Adolescent Alcohol Use. *Prevention Science, 15*(4), 497-505. doi:10.1007/s11121-013-0391-9
Burton, J. M., & Marshall, L. A. (2005). Protective factors for youth considered at risk of criminal behaviour: does participation in extracurricular activities help? *Criminal Behaviour and Mental Health, 15*(1), 46-64.
Butler-Barnes, S. T., Martin, P. P., Copeland-Linder, N., Seaton, E. K., Matusko, N., Caldwell, C. H., & Jackson, J. S. (2016). The protective role of religious involvement in African American and Caribbean Black adolescents' experiences of racial discrimination. *Youth & Society*, 0044118X15626063.
Caouette, J. D., & Guyer, A. E. (2014). Gaining insight into adolescent vulnerability for social anxiety from developmental cognitive neuroscience. *Developmental cognitive neuroscience, 8*, 65-76.
Caruthers, A. S., Van Ryzin, M. J., & Dishion, T. J. (2014). Preventing high-risk sexual behavior in early adulthood with family interventions in adolescence: Outcomes and developmental processes. *Prevention Science, 15*(1), 59-69.
Chandra-Mouli, V., Lane, C., & Wong, S. (2015). What does not work in adolescent sexual and reproductive health: a review of evidence on interventions commonly accepted as best practices. *Global Health: Science and Practice, 3*(3), 333-340.
Chandra-Mouli, V., Svanemyr, J., Amin, A., Fogstad, H., Say, L., Girard, F., & Temmerman, M. (2015). Twenty years after International Conference on Population and Development: where are we with adolescent sexual and reproductive health and rights? *Journal of Adolescent Health, 56*(1), S1-S6.
Chiao, C., & Mishra, V. (2009). Trends in primary and secondary abstinence among Kenyan youth. *AIDS care, 21*(7), 881-892.
Chigunta, F. (2002). The socio-economic situation of youth in Africa: Problems, prospects and options. *A Paper Presented at the Youth Employment Summit, Alexandria, Egypt*, 1-13.
Chilisa, R., Tlhabano, K., Vista, C., Pheko, M., Losike, N., Mosime, S., . . . Balogun, S. K. (2013). Self-efficacy, self-esteem and the intention to practice safe sex among batswana adolescents. *IOSR Journal of Humanities and Social Science (IOSR-JHSS), 9*(2), 87-95.
Chin, H. B., Sipe, T. A., Elder, R., Mercer, S. L., Chattopadhyay, S. K., Jacob, V., . . . Griffith, M. (2012). The effectiveness of group-based comprehensive risk-reduction and abstinence education interventions to prevent or reduce the risk of adolescent pregnancy, human immunodeficiency virus, and sexually transmitted infections: two systematic reviews for the Guide to Community Preventive Services. *American journal of preventive medicine, 42*(3), 272-294.
Choi, K. W., Watt, M. H., Skinner, D., Kalichman, S. C., & Sikkema, K. J. (2015). "Wine you get every day, but a child you can't replace": The perceived impact of parental drinking on child outcomes in a South African township. *Journal of Child & Adolescent Mental Health, 27*(3), 173-187.

Choko, A. T., Fielding, K., Stallard, N., Maheswaran, H., Lepine, A., Desmond, N., . . . Corbett, E. L. (2017). Investigating interventions to increase uptake of HIV testing and linkage into care or prevention for male partners of pregnant women in antenatal clinics in Blantyre, Malawi: study protocol for a cluster randomised trial. *Trials, 18*(1), 349.

Cleland, J., & Ali, M. M. (2006). Sexual abstinence, contraception, and condom use by young African women: a secondary analysis of survey data. *The Lancet, 368*(9549), 1788-1793.

Coates, T. J., Richter, L., & Caceres, C. (2008). Behavioural strategies to reduce HIV transmission: how to make them work better. *The Lancet, 372*(9639), 669-684.

Coleman, J., & Hagell, A. (2007). *Adolescence, risk and resilience: Against the odds* (Vol. 3): John Wiley & Sons.

Coley, R. L., Lombardi, C. M., Lynch, A. D., Mahalik, J. R., & Sims, J. (2013). Sexual partner accumulation from adolescence through early adulthood: The role of family, peer, and school social norms. *Journal of Adolescent Health, 53*(1), 91-97. e92.

Conserve, D., Sevilla, L., Mbwambo, J., & King, G. (2013). Determinants of previous HIV testing and knowledge of partner's HIV status among men attending a voluntary counseling and testing clinic in Dar es Salaam, Tanzania. *American journal of men's health, 7*(6), 450-460.

Copeland-Linder, N., Lambert, S. F., & Ialongo, N. S. (2010). Community violence, protective factors, and adolescent mental health: A profile analysis. *Journal of Clinical Child & Adolescent Psychology, 39*(2), 176-186.

Corsi, D. J., Neuman, M., Finlay, J. E., & Subramanian, S. V. (2012). Demographic and health surveys: a profile. *International journal of epidemiology, 41*(6), 1602-1613.

Coutts, A., Kim, D., Kawachi, I., & Subramanian, S. (2004). Commentary: Reconciling the three accounts of social capital. *International Journal of Epidemiology, 33*(4), 682-690. doi:10.1093/ije/dyh177

Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research.

Creswell, J. W., & Poth, C. N. (2017). *Qualitative inquiry and research design: Choosing among five approaches*: Sage publications.

Crichton, J., Ibisomi, L., & Gyimah, S. O. (2012). Mother–daughter communication about sexual maturation, abstinence and unintended pregnancy: Experiences from an informal settlement in Nairobi, Kenya. *Journal of adolescence, 35*(1), 21-30.

Dageid, W., & Grønlie, A. A. (2015). The associations between resilience, social capital and self-rated health among HIV-positive South Africans. *Journal of health psychology, 20*(11), 1463-1473.

Darling, N., Caldwell, L. L., & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research, 37*(1), 51.

Deković, M. (1999). Risk and protective factors in the development of problem behavior during adolescence. *Journal of youth and adolescence, 28*(6), 667-685.

DiBlasio, F. A., & Benda, B. B. (1992). Gender differences in theories of adolescent sexual activity. *Sex Roles, 27*(5-6), 221-239.

Dietrich, J., Sikkema, K., Otwombe, K. N., Sanchez, A., Nkala, B., de Bruyn, G., . . . Gray, G. E. (2013). Multiple levels of influence in predicting sexual activity and condom use among adolescents in Soweto, Johannesburg, South Africa. *Journal of HIV/AIDS & social services, 12*(3-4), 404-423.

Dimbuene, Z. T., & Defo, B. K. (2011). Fostering accurate HIV/AIDS knowledge among unmarried youths in Cameroon: Do family environment and peers matter? *BMC Public Health, 11*(1), 348.

Dovel, K., Yeatman, S., Watkins, S., & Poulin, M. (2015). Men's heightened risk of AIDS-related death: the legacy of gendered HIV testing and treatment strategies. *AIDS (London, England), 29*(10), 1123.

Eaton, L., & Fllsher, A. J. (2000). HIV/AIDS knowledge among South African youth. *Southern African Journal of Child and Adolescent Mental Health, 12*(2), 97-124.

Eggers, S. M., Aarø, L. E., Bos, A. E. R., Mathews, C., Kaaya, S. F., Onya, H., & de Vries, H. (2016). Sociocognitive predictors of condom use and intentions among adolescents in three sub-saharan sites. *Archives of sexual behavior, 45*(2), 353-365.

Eggers, S. M., Mathews, C., Aarø, L. E., McClinton-Appollis, T., Bos, A. E. R., & de Vries, H. (2017). Predicting Primary and Secondary Abstinence Among Adolescent Boys and Girls in the Western Cape, South Africa. *AIDS and Behavior, 21*(5), 1417-1428.

Erulkar, A. S. (2004). The experience of sexual coercion among young people in Kenya. *International family planning perspectives*, 182-189.

Farrington, D. P., & Ttofi, M. M. (2011). Protective and promotive factors in the development of offending. *Antisocial behavior and crime: Contributions of developmental and evaluation research to prevention and intervention*, 71-88.

Fatusi, A. O., & Blum, R. W. (2008). Predictors of early sexual initiation among a nationally representative sample of Nigerian adolescents. *BMC Public Health, 8*(1), 1.

Fauth, R. C., Roth, J. L., & Brooks-Gunn, J. (2007). Does the neighborhood context alter the link between youth's after-school time activities and developmental outcomes? A multilevel analysis. *Developmental psychology, 43*(3), 760.

Feldman, A. F., & Matjasko, J. L. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review and future directions. *Review of educational research, 75*(2), 159-210.

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health, 26*, 399-419.

Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European Psychologist*.

Flouri, E., Midouhas, E., Joshi, H., & Tzavidis, N. (2015). Emotional and behavioural resilience to multiple risk exposure in early life: the role of parenting. *European child & adolescent psychiatry, 24*(7), 745-755.

Folayan, M. O., Harrison, A., Odetoyinbo, M., & Brown, B. (2014). Tackling the sexual and reproductive health and rights of adolescents living with HIV/AIDS: a priority need in Nigeria. *African journal of reproductive health, 18*(3), 102-108.

Fosco, G. M., Stormshak, E. A., Dishion, T. J., & Winter, C. E. (2012). Family relationships and parental monitoring during middle school as predictors of early adolescent problem behavior. *Journal of Clinical Child & Adolescent Psychology, 41*(2), 202-213.

Foster, D. W., Quist, M. C., Young, C. M., Bryan, J. L., Nguyen, M.-L., & Neighbors, C. (2013). Benefit finding as a moderator of the relationship between spirituality/religiosity and drinking. *Addictive behaviors, 38*(11), 2647-2652. doi:10.1016/j.addbeh.2013.06.019

Francis, J. M., Myers, B., Nkosi, S., Williams, P. P., Carney, T., Lombard, C., . . . Morojele, N. (2019). The prevalence of religiosity and association between religiosity and alcohol

use, other drug use, and risky sexual behaviours among grade 8-10 learners in Western Cape, South Africa. *PloS one, 14*(2), e0211322.

Ganchimeg, T., Ota, E., Morisaki, N., Laopaiboon, M., Lumbiganon, P., Zhang, J., . . . Tunçalp, Ö. (2014). Pregnancy and childbirth outcomes among adolescent mothers: a World Health Organization multicountry study. *BJOG: An International Journal of Obstetrics & Gynaecology, 121*(s1), 40-48.

Gardner, M., Roth, J., & Brooks-Gunn, J. (2011). Sports participation and juvenile delinquency: The role of the peer context among adolescent boys and girls with varied histories of problem behavior.

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child development*, 97-111.

Geary, C., Silverstein, L., & Fatusi, A. O. (2010). *Adolescent Sexual and Reproductive Health Program (Review and Design)* Retrieved from Washington, DC. :

Gilman, R., Meyers, J., & Perez, L. (2004). Structured extracurricular activities among adolescents: Findings and implications for school psychologists. *Psychology in the Schools, 41*(1), 31-41.

Glasier, A., Gülmezoglu, A. M., Schmid, G. P., Moreno, C. G., & Van Look, P. F. A. (2006). Sexual and reproductive health: a matter of life and death. *The Lancet, 368*(9547), 1595-1607.

Goldstein, H. (2011). *Multilevel statistical models* (Vol. 922): John Wiley & Sons.

Green, E. C., Halperin, D. T., Nantulya, V., & Hogle, J. A. (2006). Uganda's HIV prevention success: the role of sexual behavior change and the national response. *AIDS and Behavior, 10*(4), 335-346.

Green, E. C., Kajubi, P., Ruark, A., Kamya, S., D'Errico, N., & Hearst, N. (2013). The need to reemphasize behavior change for HIV prevention in Uganda: a qualitative study. *Studies in Family Planning, 44*(1), 25-43.

Gregson, S., Terceira, N., Mushati, P., Nyamukapa, C., & Campbell, C. (2004). Community group participation:: Can it help young women to avoid HIV? An exploratory study of social capital and school education in rural Zimbabwe. *Social Science & Medicine, 58*(11), 2119-2132.

Grossbard, J., Geisner, I. M., Neighbors, C., Kilmer, J. R., & Larimer, M. E. (2007). Are drinking games sports? College athlete participation in drinking games and alcohol-related problems. *Journal of Studies on Alcohol and Drugs, 68*(1), 97-105.

Gyimah-Brempong, K., & Kimenyi, M. S. (2013). *Youth Policy and the Future of African Development*. Retrieved from

Haberland, N., & Rogow, D. (2015). Sexuality education: emerging trends in evidence and practice. *Journal of Adolescent Health, 56*(1), S15-S21.

Haglund, K. A., & Fehring, R. J. (2010). The association of religiosity, sexual education, and parental factors with risky sexual behaviors among adolescents and young adults. *Journal of religion and health, 49*(4), 460-472.

Halperin, D. T., Mugurungi, O., Hallett, T. B., Muchini, B., Campbell, B., Magure, T., . . . Gregson, S. (2011). A Surprising Prevention Success: Why did the HIV epidemic decline in Zimbabwe? *PLoS medicine, 8*(2), e1000414.

Hargreaves, J. R., Morison, L. A., Kim, J. C., Bonell, C. P., Porter, J. D. H., Watts, C., . . . Pronyk, P. M. (2008). The association between school attendance, HIV infection and sexual

behaviour among young people in rural South Africa. *Journal of Epidemiology & Community Health, 62*(2), 113-119.

Harper, G. W., Riplinger, A. J., Neubauer, L. C., Murphy, A. G., Velcoff, J., & Bangi, A. K. (2013). Ecological factors influencing HIV sexual risk and resilience among young people in rural Kenya: implications for prevention. *Health education research*, cyt081.

Haydon, A. A., Cheng, M. M., Herring, A. H., McRee, A.-L., & Halpern, C. T. (2014). Prevalence and predictors of sexual inexperience in adulthood. *Archives of sexual behavior, 43*(2), 221-230.

Heathfield, M., & Fusco, D. (2015). *Youth and Inequality in Education: Global Actions in Youth Work*: Routledge.

Hennink, M., Hutter, I., & Bailey, A. (2010). *Qualitative research methods*: Sage.

Hensen, B., Lewis, J., Schaap, A., Tembo, M., Mutale, W., Weiss, H., . . . Ayles, H. (2015). Factors associated with HIV-testing and acceptance of an offer of home-based testing by men in rural Zambia. *AIDS and Behavior, 19*(3), 492-504.

Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Parent academic involvement as related to school behavior, achievement, and aspirations: Demographic variations across adolescence. *Child development, 75*(5), 1491-1509.

Hvidtjørn, D., Hjelmborg, J., Skytthe, A., Christensen, K., & Hvidt, N. C. (2014). Religiousness and religious coping in a secular society: The gender perspective. *Journal of religion and health, 53*(5), 1329-1341.

Ibrahim, M., Ipadeola, O., Adebayo, S., & Fatusi, A. (2013). Socio-demographic determinants of HIV counseling and testing uptake among young people in Nigeria. *International Journal of Prevention and Treatment, 2*(3), 23-31.

Iliyasu, Z., Aliyu, M. H., Abubakar, I. S., & Galadanci, H. S. (2012). Sexual and reproductive health communication between mothers and their adolescent daughters in northern Nigeria. *Health care for women international, 33*(2), 138-152.

Isiugo-Abanihe, U. C., & Oyediran, K. A. (2004). Household socioeconomic status and sexual behaviour among Nigerian female youth. *African Population Studies, 19*(1), 81-98.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental psychology, 31*(6), 923.

Jewkes, R., Wood, K., & Duvvury, N. (2010). 'I woke up after I joined Stepping Stones': meanings of an HIV behavioural intervention in rural South African young people's lives. *Health education research, 25*(6), 1074-1084.

Kabiru, C. W., Beguy, D., Ndugwa, R. P., Zulu, E. M., & Jessor, R. (2012). "Making it": Understanding adolescent resilience in two informal settlements (slums) in Nairobi, Kenya. *Child & youth services, 33*(1), 12-32.

Kabiru, C. W., Elung'ata, P., Mojola, S. A., & Beguy, D. (2014). Adverse life events and delinquent behavior among Kenyan adolescents: a cross-sectional study on the protective role of parental monitoring, religiosity, and self-esteem. *Child and adolescent psychiatry and mental health, 8*(1), 24.

Kabiru, C. W., & Ezeh, A. (2007). Factors associated with Sexual Abstinence among Adolescents in Four Sub-Saharan African Countries: original research article. *African journal of reproductive health, 11*(3), 99-110.

Kabiru, C. W., Izugbara, C. O., & Beguy, D. (2013). The health and wellbeing of young people in sub-Saharan Africa: an under-researched area? *BMC international health and human rights, 13*(1), 11.

Kao, T.-S. A., & Carter, W. A. (2013). Family influences on adolescent sexual activity and alcohol use. *Open Family Studies Journal, 5*(1), 10-18.

Karim, A. M., Magnani, R. J., Morgan, G. T., & Bond, K. C. (2003). Reproductive health risk and protective factors among unmarried youth in Ghana. *International family planning perspectives*, 14-24.

Kaufman, C. E., Clark, S., Manzini, N., & May, J. (2004). Communities, Opportunities, and Adolescents' Sexual Behavior in KwaZulu-Natal, South Africa. *Studies in family planning, 35*(4), 261-274.

Kaur, M. (2016). Application of mixed method approach in public health research. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 41*(2), 93.

Khan, S., & Mishra, V. (2008). Youth reproductive and sexual health.

Koffi, A. K., & Kawahara, K. (2008). Sexual abstinence behavior among never-married youths in a generalized HIV epidemic country: evidence from the 2005 Côte d'Ivoire AIDS indicator survey. *BMC Public Health, 8*(1), 408. doi:10.1186/1471-2458-8-408

Kuperminc, G. P., Wilkins, N. J., Roche, C., & Alvarez-Jimenez, A. (2009). Risk, resilience, and positive development among Latino youth. *Handbook of US Latino psychology: Developmental and community-based perspectives*, 213-233.

Leddy, A., Chakravarty, D., Dladla, S., de Bruyn, G., & Darbes, L. (2016). Sexual communication self-efficacy, hegemonic masculine norms and condom use among heterosexual couples in South Africa. *AIDS care, 28*(2), 228-233.

Lubans, D. R., Plotnikoff, R. C., & Lubans, N. J. (2012). Review: A systematic review of the impact of physical activity programmes on social and emotional well-being in at-risk youth. *Child and Adolescent Mental Health, 17*(1), 2-13.

Luke, N. (2003). Age and economic asymmetries in the sexual relationships of adolescent girls in sub-Saharan Africa. *Studies in family planning, 34*(2), 67-86.

Magadi, M. A., & Uchudi, J. (2015). Onset of sexual activity among adolescents in HIV/AIDS-affected households in sub-Saharan Africa. *Journal of biosocial science, 47*(2), 238-257.

Maggs, J. L., Williams, L. R., & Lee, C. M. (2011). Ups and downs of alcohol use among first-year college students: Number of drinks, heavy drinking, and stumble and pass out drinking days. *Addictive behaviors, 36*(3), 197-202.

Magnani, R. J., Karim, A. M., Weiss, L. A., Bond, K. C., Lemba, M., & Morgan, G. T. (2002). Reproductive health risk and protective factors among youth in Lusaka, Zambia. *Journal of Adolescent Health, 30*(1), 76-86.

Mahoney, J. L., Harris, A. L., & Eccles, J. S. (2006). Organized Activity Participation, Positive Youth Development, and the Over-Scheduling Hypothesis. Social Policy Report. Volume 20, Number 4. *Society for Research in Child Development*.

Malik, B. K. (2015). Youth development in India: does poverty matter? *SpringerPlus, 4*(1), 613.

Manu, A. A., Mba, C. J., Asare, G. Q., Odoi-Agyarko, K., & Asante, R. K. O. (2015). Parent–child communication about sexual and reproductive health: evidence from the Brong Ahafo region, Ghana. *Reproductive health, 12*(1), 16.

Martinez, G., Copen, C. E., & Abma, J. C. (2011). Teenagers in the United States; sexual activity, contraceptive use, and childbearing, 2006-2010 National Survey of Family Growth.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist, 56*(3), 227.

Mavedzenge, S. M. N., Doyle, A. M., & Ross, D. A. (2011). HIV prevention in young people in sub-Saharan Africa: a systematic review. *Journal of Adolescent Health, 49*(6), 568-586.

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach* (Vol. 41): Sage publications.

McCree, D. H., Wingood, G. M., DiClemente, R., Davies, S., & Harrington, K. F. (2003). Religiosity and risky sexual behavior in African-American adolescent females. *Journal of Adolescent Health, 33*(1), 2-8.

Melvin, A. O. (2012). Dating practices and patterns of disclosure among in-school adolescents in Oyo State, Nigeria. *Africa Development, 37*(3), 19-39.

Merrin, G. J., Hong, J. S., & Espelage, D. L. (2015). Are the risk and protective factors similar for gang-involved, pressured-to-join, and non-gang-involved youth? A social-ecological analysis. *American journal of orthopsychiatry, 85*(6), 522.

Michielsen, K., Chersich, M. F., Luchters, S., De Koker, P., Van Rossem, R., & Temmerman, M. (2010). Effectiveness of HIV prevention for youth in sub-Saharan Africa: systematic review and meta-analysis of randomized and nonrandomized trials. *Aids, 24*(8), 1193-1202.

Mojola, S. A., Williams, J., Angotti, N., & Gómez-Olivé, F. X. (2015). HIV after 40 in rural South Africa: A life course approach to HIV vulnerability among middle aged and older adults. *Social Science & Medicine, 143*, 204-212.

Mokwena, K., & Morabe, M. (2016). Sexual abstinence: What is the understanding and views of secondary school learners in a semi-rural area of North West Province, South Africa? *SAHARA-J: Journal of Social Aspects of HIV/AIDS, 13*(1), 81-87.

Moore, A. M., Awusabo-Asare, K., Madise, N., John-Langba, J., & Kumi-Kyereme, A. (2007). Coerced first sex among adolescent girls in sub-Saharan Africa: prevalence and context. *African journal of reproductive health, 11*(3), 62.

Moreau, C., Trussell, J., & Bajos, N. (2013). Religiosity, religious affiliation, and patterns of sexual activity and contraceptive use in France. *The European Journal of Contraception & Reproductive Health Care, 18*(3), 168-180.

Murray, C. (2009). Parent and teacher relationships as predictors of school engagement and functioning among low-income urban youth. *The Journal of Early Adolescence, 29*(3), 376-404.

Murray, C., & Malmgren, K. (2005). Implementing a teacher–student relationship program in a high-poverty urban school: Effects on social, emotional, and academic adjustment and lessons learned. *Journal of School Psychology, 43*(2), 137-152.

Musavian, A. S., Pasha, A., Rahebi, S.-M., Roushan, Z. A., & Ghanbari, A. (2014). Health promoting Behaviors Among Adolescents: A Cross-sectional Study. *Nursing and midwifery studies, 3*(1).

Muscari, M. E. (2016). *Child Behavioral and Parenting Challenges for Advanced Practice Nurses: A Reference for Front-line Health Care Providers*: Springer Publishing Company.

Nash, J. K., Mujanovic, E., & Winfree Jr, L. T. (2011). Protective effects of parental monitoring on offending in victimized youth in Bosnia and Herzegovina. *Child & Youth Services, 32*(3), 224-242.

NDHS. (2013). *Nigeria Demographic Health Survey (NDHS)*. Retrieved from Abuja:

Ndugwa, R. P., Kabiru, C. W., Cleland, J., Beguy, D., Egondi, T., Zulu, E. M., & Jessor, R. (2011). Adolescent problem behavior in Nairobi's informal settlements: applying problem behavior theory in sub-Saharan Africa. *Journal of Urban Health, 88*(2), 298-317.

Neal, S., Matthews, Z., Frost, M., Fogstad, H., Camacho, A. V., & Laski, L. (2012). Childbearing in adolescents aged 12–15 years in low resource countries: a neglected issue. New estimates from demographic and household surveys in 42 countries. *Acta obstetricia et gynecologica Scandinavica, 91*(9), 1114-1118.

Nwachukwu, C. E., & Odimegwu, C. (2011). Regional patterns and correlates of HIV voluntary counselling and testing among youths in Nigeria. *African journal of reproductive health, 15*(2).

Obiyan, M. O., & Agunbiade, O. M. (2014). Paradox of Parental Involvement in Sexual Health and Induced Abortions Among In-school Female Adolescents in Southwest Nigeria. *Sexuality & Culture, 18*(4), 847-869.

Odimegwu, C. (2005). Influence of religion on adolescent sexual attitudes and behaviour among Nigerian university students: affiliation or commitment? *African journal of reproductive health*, 125-140.

Odimegwu, C., & Adedini, S. A. (2013). Do family structure and poverty affect sexual risk behaviors of undergraduate students in Nigeria? *African journal of reproductive health, 17*(4), 137-149.

Odimegwu, C., & Somefun, O. D. (2017). Ethnicity, gender and risky sexual behaviour among Nigerian youth: An alternative explanation. *Reproductive health, 14*(1), 16.

Odimegwu, C., Somefun, O. D., & Chisumpa, V. H. (2018). Regional differences in positive sexual behaviour among youth in sub-Saharan Africa. *Journal of biosocial science*, 1-19.

Odimegwu, C., Somefun, O. D., & De Wet, N. (2017). Contextual determinants of family dissolution in sub-Saharan Africa. *Development Southern Africa, 34*(6), 721-737.

Odimegwu, C. O., Akinyemi, J. O., & Alabi, O. O. (2017). HIV-stigma in Nigeria: review of research studies, policies, and Programmes. *AIDS research and treatment, 2017*.

Odimegwu, C. O., Solanke, L. B., & Adedokun, A. (2002). Parental characteristics and adolescent sexual behaviour in Bida local government area of Niger State, Nigeria. *African journal of reproductive health*, 95-106.

Odo, A. N., Samuel, E. S., Nwagu, E. N., Nnamani, P. O., & Atama, C. S. (2018). Sexual and reproductive health services (SRHS) for adolescents in Enugu state, Nigeria: a mixed methods approach. *BMC health services research, 18*(1), 92-92. doi:10.1186/s12913-017-2779-x

Oduwole, T. A. (2015). Youth unemployment and poverty in Nigeria. *International Journal of Sociology and Anthropology Research, 1*(2), 23-39.

Ogaji, D. S., Oyeyemi, A. S., & Ibrahim, I. (2013). Awareness, willingness and use of Voluntary HIV testing and counseling services by students of a university in south-south Nigeria. *Journal of Community Medicine and Primary Health Care, 25*(2), 36-44.

Ohene, S.-A., Johnson, K., Atunah-Jay, S., Owusu, A., & Borowsky, I. W. (2015). Sexual and physical violence victimization among senior high school students in Ghana: Risk and protective factors. *Social Science & Medicine, 146*, 266-275.

Okigbo, C. C., Kabiru, C. W., Mumah, J. N., Mojola, S. A., & Beguy, D. (2015). Influence of parental factors on adolescents' transition to first sexual intercourse in Nairobi, Kenya: a longitudinal study. *Reproductive health, 12*(1), 73.

Olivier, J., & Wodon, Q. (2015). Religion, Reproductive Health, and Sexual Behavior in Ghana: Why Statistics from Large Surveys Don't Tell the Whole Story. *The Review of Faith & International Affairs, 13*(2), 64-73.

Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: A concept analysis. *Journal of adolescence, 26*(1), 1-11.

Olusegun, O. O., & Idowu, A. A. (2016). Child abuse In Nigeria: Dimension, reasons for Its persistence and probable. *Child and Family Law Journal, 4*(1), 2.

Ombati, M., & Ombati, V. (2016). Sources of resilience for children and youth in residential slums of Eldoret city in Kenya. *Chinese Sociological Dialogue, 1*(1), 48-65.

Onoya, D., Reddy, P. S., Ruiter, R. A. C., Sifunda, S., Wingood, G., & van den Borne, B. (2011). Psychosocial correlates of condom use consistency among Isixhosa-speaking women living with HIV in the Western Cape Province of South Africa. *Journal of health psychology, 16*(8), 1208-1220.

Oyediran, K. A., Feyisetan, O. I., & Akpan, T. (2011). Predictors of condom-use among young never-married males in Nigeria. *Journal of health, population, and nutrition, 29*(3), 273.

Oyefeso, A. O., & Adegoke, A. R. (1992). Psychological adjustment of Yoruba adolescents as influenced by family type: A research note. *Journal of Child Psychology and Psychiatry, 33*(4), 785-788.

Patten, M. L. (2017). *Understanding research methods: An overview of the essentials*: Taylor & Francis.

Patton, G. C., Coffey, C., Cappa, C., Currie, D., Riley, L., Gore, F., . . . Sangowawa, A. O. (2012). Health of the world's adolescents: a synthesis of internationally comparable data. *The Lancet, 379*(9826), 1665-1675.

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., . . . Bonell, C. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *The Lancet, 387*(10036), 2423-2478.

Petersen, A. C., Koller, S. H., Motti-Stefanidi, F., & Verma, S. (2016). *Positive Youth Development in Global Contexts of Social and Economic Change*: Routledge.

Pilgrim, N. A., Ahmed, S., Gray, R. H., Sekasanvu, J., Lutalo, T., Nalugoda, F., . . . Wawer, M. J. (2014). Family structure effects on early sexual debut among adolescent girls in Rakai, Uganda. *Vulnerable children and youth studies, 9*(3), 193-205.

Plenty, S., & Mood, C. (2016). Money, peers and parents: Social and economic aspects of inequality in youth wellbeing. *Journal of youth and adolescence, 45*(7), 1294-1308.

Prata, N., Vahidnia, F., & Fraser, A. (2005). Gender and relationship differences in condom use among 15-24-year-olds in Angola. *International family planning perspectives, 31*(4), 192-200.

Protogerou, C., Flisher, A. J., & Wild, L. G. (2014). Factors shaping condom use among South African university students: a thematic analysis. *Journal of Psychology in Africa, 24*(3), 215-224.

Reckless, W. C. (1961). A new theory of deliquency and crime. *Fed. Probation, 25*, 42.

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., . . . Udry, J. R. (1997). Protecting Adolescents From Harm: Findings From the National Longitudinal Study on Adolescent Health. *JAMA, 278*(10), 823-832. doi:10.1001/jama.1997.03550100049038

Restrepo-Méndez, M. C., & Victora, C. G. (2014). Maternal mortality by age: who is most at risk? *The Lancet Global Health, 2*(3), e120-e121.

Richardson, J. G., & Bourdieu, P. (1986). The forms of capital. *Handbook of Theory and Research for the Sociology of Education*, 241-258.

Richter, L., Komárek, A., Desmond, C., Celentano, D., Morin, S., Sweat, M., . . . Mbwambo, J. (2014). Reported physical and sexual abuse in childhood and adult HIV risk behaviour in three African countries: findings from Project Accept (HPTN-043). *AIDS and Behavior, 18*(2), 381-389.

Richter, L., Mabaso, M., Ramjith, J., & Norris, S. A. (2015). Early sexual debut: Voluntary or coerced? Evidence from longitudinal data in South Africa–the Birth to Twenty Plus study. *South African Medical Journal, 105*(4), 304-307.

Rijsdijk, L. E., Bos, A. E. R., Lie, R., Ruiter, R. A. C., Leerlooijer, J. N., & Kok, G. (2012). Correlates of delayed sexual intercourse and condom use among adolescents in Uganda: a cross-sectional study. *BMC Public Health, 12*(1), 817.

Roche, K. M., & Leventhal, T. (2009). Beyond neighborhood poverty: Family management, neighborhood disorder, and adolescents' early sexual onset. *Journal of Family Psychology, 23*(6), 819.

Romer, D., Stanton, B., Galbraith, J., Feigelman, S., Black, M. M., & Li, X. (1999). Parental influence on adolescent sexual behavior in high-poverty settings. *Archives of pediatrics & adolescent medicine, 153*(10), 1055-1062.

Rosenberg, M., Pettifor, A., Miller, W. C., Thirumurthy, H., Emch, M., Afolabi, S. A., . . . Tollman, S. (2015). Relationship between school dropout and teen pregnancy among rural South African young women. *International journal of epidemiology, 44*(3), 928-936.

Rostosky, S. S., Wilcox, B. L., Wright, M. L. C., & Randall, B. A. (2004). The impact of religiosity on adolescent sexual behavior: A review of the evidence. *Journal of Adolescent Research, 19*(6), 677-697.

Ruark, A., & Fielding-Miller, R. (2016). Using Qualitative Methods to Validate and Contextualize Quantitative Findings: A Case Study of Research on Sexual Behavior and Gender-Based Violence Among Young Swazi Women. *Global Health: Science and Practice, 4*(3), 373-383.

Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health, 14*(8), 626-631.

Rutter, M. (1999). Resilience concepts and findings: implications for family therapy. *Journal of family therapy, 21*(2), 119-144.

Santhya, K. G., & Jejeebhoy, S. J. (2015). Sexual and reproductive health and rights of adolescent girls: Evidence from low-and middle-income countries. *Global Public Health, 10*(2), 189-221.

Sedgh, G., Bankole, A., Okonofua, F., Imarhiagbe, C., Hussain, R., & Wulf, D. (2009). Meeting young women's sexual and reproductive health needs in Nigeria. *New York: Guttmacher Institute*.

Sharma, R. (2013). The Family and Family Structure Classification Redefined for the Current Times. *Journal of family medicine and primary care, 2*(4), 306-310. doi:10.4103/2249-4863.123774

Shaw, S. A., & El-Bassel, N. (2014). The influence of religion on sexual HIV risk. *AIDS and Behavior, 18*(8), 1569-1594.

Shek, D. T. L., Xie, Q., & Lin, L. (2015). The Impact of Family Intactness on Family Functioning, Parental Control, and Parent–Child Relational Qualities in a Chinese Context. *Frontiers in Pediatrics, 2*(149). doi:10.3389/fped.2014.00149

Shittu, O., Ejembi, C., Adaji, S., Abdul, M., Idris, S., Abdulkarim, B., . . . Potts, M. (2010). The current state of reproductive health in rural northern Nigeria in the context of the pursuit of the MDGs: perspectives from a community-based research training program: original research article. *African journal of reproductive health, 14*(Special issue 3), 15-18.

Slap, G. B., Lot, L., Huang, B., Daniyam, C. A., Zink, T. M., & Succop, P. A. (2003). Sexual behaviour of adolescents in Nigeria: cross sectional survey of secondary school students. *Bmj, 326*(7379), 15.

Smith, D., Roofe, M., Ehiri, J., Campbell-Forrester, S., Jolly, C., & Jolly, P. (2003). Sociocultural contexts of adolescent sexual behavior in rural Hanover, Jamaica. *Journal of Adolescent Health, 33*(1), 41-48.

Smith, D. J. (2004). Youth, sin and sex in Nigeria: Christianity and HIV/AIDS-related beliefs and behaviour among rural-urban migrants. *Culture, Health & Sexuality, 6*(5), 425-437.

Somefun, O. D., & Odimegwu, C. (2018a). The protective role of family structure for adolescent development in sub-Saharan Africa. *PloS one, 13*(10), e0206197-e0206197. doi:10.1371/journal.pone.0206197

Somefun, O. D., & Odimegwu, C. (2018b). The protective role of family structure for adolescent development in sub-Saharan Africa. *PloS one, 13*(10), e0206197.

Somefun, O. D., Wandera, S. O., & Odimegwu, C. (2019). Media Exposure and HIV Testing Among Youth in Sub-Saharan Africa: Evidence From Demographic and Health Surveys (DHS). *SAGE Open, 9*(2), 2158244019851551.

Speizer, I. S., Fotso, J. C., Davis, J. T., Saad, A., & Otai, J. (2013). Timing and circumstances of first sex among female and male youth from select urban areas of Nigeria, Kenya, and Senegal. *Journal of Adolescent Health, 53*(5), 609-616.

Speizer, I. S., Guilkey, D., Calhoun, L. M., Corroon, M., & O'Hara, R. (2017). Examination of youth sexual and reproductive health transitions in Nigeria and Kenya using longitudinal data. *BMC Public Health, 17*(1), 142.

Stanley, N., Barter, C., Wood, M., Aghtaie, N., Larkins, C., Lanau, A., & Överlien, C. (2018). Pornography, sexual coercion and abuse and sexting in young people's intimate relationships: a European study. *Journal of interpersonal violence, 33*(19), 2919-2944.

Stephenson, R., Simon, C., & Finneran, C. (2014). Community factors shaping early age at first sex among adolescents in Burkina Faso, Ghana, Malawi, and Uganda. *Journal of health, population, and nutrition, 32*(2), 161.

Svanemyr, J., Amin, A., Robles, O. J., & Greene, M. E. (2015). Creating an enabling environment for adolescent sexual and reproductive health: a framework and promising approaches. *Journal of Adolescent Health, 56*(1), S7-S14.

Tenkorang, E. Y., & Adjei, J. K. (2015). Household living arrangements and transition to sexual debut among young people in Ghana. *Sex Education, 15*(1), 1-18.

Tumwesigye, N. M., Ingham, R., & Holmes, D. (2008). The dynamics of secondary abstinence among unmarried young people: analysis of event history calendar data from Kabale and Mukono districts in Uganda. *The African Statistical Journal, 6*, 67-87.

UNAIDS. (2015). *All In# EndAdolescentAIDS*. Retrieved from Geneva: http://www.unaids.org/sites/default/files/media_asset/20150217_ALL_IN_brochure.pdf

UNICEF. (2016). *Collecting and Reporting of Sex- and Age-Disaggregated Data on Adolescents at the Sub-National Level*. Retrieved from https://data.unicef.org/wp-content/uploads/2016/11/Data-Abstraction-Guide-November-2016.pdf

United Nations. (2013). *Child, Early and Forced Marriage: A Multi-Country Study*. Retrieved from

Uthman, O. A. (2008). Geographical variations and contextual effects on age of initiation of sexual intercourse among women in Nigeria: a multilevel and spatial analysis. *International Journal of Health Geographics, 7*(1), 27.

Van Campen, K. S., & Romero, A. J. (2012). How Are Self-Efficacy and Family Involvement Associated With Less Sexual Risk Taking Among Ethnic Minority Adolescents? *Family Relations, 61*(4), 548-558.

Van der Geugten, J., Van Meijel, B., Den Uyl, M. H. G., & De Vries, N. K. (2016). Conceptions of and Attitude toward Multiple Sexual Partners among Youths in Bolgatanga Municipality, Northern Ghana. *Journal of Child and Adolescent Behavior*.

Van Ouytsel, J., Van Gool, E., Walrave, M., Ponnet, K., & Peeters, E. (2017). Sexting: adolescents' perceptions of the applications used for, motives for, and consequences of sexting. *Journal of Youth Studies, 20*(4), 446-470.

Vanderbilt-Adriance, E., & Shaw, D. S. (2008). Protective factors and the development of resilience in the context of neighborhood disadvantage. *Journal of Abnormal Child Psychology, 36*(6), 887-901.

Varga, C. A. (2001). The forgotten fifty per cent: a review of sexual and reproductive health research and programs focused on boys and young men in sub-Saharan Africa. *African Journal of Reproductive Health*, 175-195.

Vasilenko, S. A., Kugler, K. C., Butera, N. M., & Lanza, S. T. (2015). Patterns of adolescent sexual behavior predicting young adult sexually transmitted infections: A latent class analysis approach. *Archives of sexual behavior, 44*(3), 705-715.

Viner, R., & Macfarlane, A. (2005). ABC of adolescence: health promotion. *BMJ: British Medical Journal, 330*(7490), 527.

Wang, J.-L., Zhang, D.-J., & Zimmerman, M. A. (2015). Resilience theory and its implications for Chinese adolescents. *Psychological reports, 117*(2), 354-375.

White, C. N., & Warner, L. A. (2015). Influence of family and school-level factors on age of sexual initiation. *Journal of Adolescent Health, 56*(2), 231-237.

WHO, W. H. O. (2013). *Maternal, newborn, child and adolescent health. Documents on the integrated management of childhood illness [IMCI]*. Retrieved from http://www.who.int/maternal_child_adolescent/topics/child/imci/en/

Woolcock, M., & Szreter, S. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology, 33*(4), 650-667. doi:10.1093/ije/dyh013

Wusu, O. (2011). Religion, religiosity and adolescent risky sexual health behaviour in Lagos Metropolis, Nigeria. *Inkanyiso: Journal of Humanities and Social Sciences, 3*(1), 48-55.

Wusu, O., & Okoukoni, S. (2011). The role of HIV counselling and testing in sexual health behaviour change among undergraduates in Lagos, Nigeria. *Tanzania journal of health research, 13*(1), 27-32.

Yahaya, L. A., Jimoh, A. A. G., & Balogun, O. R. (2010). Factors hindering acceptance of HIV/AIDS voluntary counseling and testing (VCT) among youth in Kwara State, Nigeria. *African journal of reproductive health, 14*(3), 159-164.

Yonker, J. E., Schnabelrauch, C. A., & DeHaan, L. G. (2012). The relationship between spirituality and religiosity on psychological outcomes in adolescents and emerging adults: A meta-analytic review. *Journal of adolescence, 35*(2), 299-314.

Zeng, G., Chu, C. M., & Lee, Y. (2015). Assessing protective factors of youth who sexually offended in Singapore: Preliminary evidence on the utility of the DASH-13 and the SAPROF. *Sexual Abuse, 27*(1), 91-108.

Zimmerman, M. A. (2013). Resiliency Theory A Strengths-Based Approach to Research and Practice for Adolescent Health: Sage Publications.

Zimmerman, M. A., & Arunkumar, R. (1994). Resiliency research: Implications for schools and policy. *Social policy report, 8*(4), 1-18.