Assessing the Sexual and Reproductive Health Needs of Adolescents and Young Adults with HIV in Lagos, Nigeria

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Certification Page

This is to certify that Agatha Nkiruka David, with Matriculation Number LCU/PG/001735 carried out this research titled, "Assessing the Sexual and Reproductive Health Needs of Adolescents and Young Adults living with HIV in Lagos, Nigeria" in the Department of Public Health, Faculty of Basic Medical and Health Sciences, Lead City University, Ibadan, Oyo State, for the award of Doctor of Philosophy degree (PhD) in Public Health (Maternal and Child Health) and that this has not been previously submitted.

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Dedication Page

This research work is dedicated to the Almighty God for his amazing grace and to the brave children, adolescents and young adults living with, and thriving in spite of, HIV in Nigeria.

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Abstract

This quantitative cross-sectional study assessed the sexual and reproductive health (SRH) knowledge, attitude and experience of adolescents and young adults with HIV (AYLHIV) in Lagos, Nigeria. Data from randomly selected 443 AYLHIV from 4 facilities, were obtained with a self-administered questionnaire from February to August 2023. T-tests, and odds ratio and logistic regression statistics were used for data analysis.

Mean age of respondents was 18.5(±2.9) years, majority were male (51.5%), in school (61.2%), and perinatally infected with HIV (81.7%). A minority smoked (6.3%) and took street drugs (6.7%). Two-thirds (69.8%) had poor knowledge of, and half (49.7%) had negative attitude to SRH. Factors associated with good knowledge were older age (aOR=1.07[1.03-1.10]), comprehensive sexuality education(CSE) (aOR=2.30[1.34-3.92]),higher socio-economic status (aOR=1.04[1.01-1.08]), HIV status disclosure (aOR=2.61 [1.57-4.36]), and SRH communication with caregivers (aOR=2.47[1.61-3.79]). Factors associated with attitude were age, CSE, SRH communication, SRH knowledge and sexual experience ($p < 0.05$).

Mean age at menarche was 13.3(±2.3) years, and majority of AGYW (64.6%) had good menstrual hygiene practice. Factors associated with good MHP was having learned of menstruation before menarche (OR:2.45[1.03-5.93]).

32.5% of respondents were sexually experienced with sexual debut at 17.2(±3.3) years. Early sexual debut [21.1%], inconsistent condom use [52.9%], transactional sex [23.3%], and multiple sexual partnership [51.8%], were common. Sexual abuse (20.1%), intimate partner violence (8.1%), unintended pregnancies (20.9%), and sexually transmitted infection (14.6%) were also prevalent. Factors associated with these adverse experiences were not having CSE, no SRH communication with caregivers, low socio-economic status and poor SRH knowledge. Available AYFCs did not offer comprehensive SRH services, only providing SRH counselling, occasional condoms, and referrals for other SRH issues.

Improving access to SRH information, education, and service, and providing support for HIV status disclosure for AYLHIV, improving socio-economic condition of the society, and helping parents improve communication skills would ensure optimal SRH of AYLHIV.

Key Words: Sexual and reproductive health, adolescents, young adults, knowledge, attitude, experience, Lagos, Nigeria

Word Count: 300

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List of Acronyms

Abbreviation	Meaning
ABR	Adolescent Birth Rate
ABYM	Adolescent Boys and Young Men
AGYW	Adolescent Girls and Young Women
AHD	Advanced HIV Disease
AIDS	Acquired Immunodeficiency Syndrome
ALHIV	Adolescents Living with HIV
ART	Antiretroviral Therapy
ARV	Antiretroviral Drugs
ASRH	Adolescent Sexual and Reproductive Health
AYA	Adolescents and Young Adults
AYFC	Adolescent and Youth Friendly Clinic
AYFS	Adolescent and Youth Friendly Services
AYLHIV	Adolescents and Young Adults Living with HIV
AYP	Adolescents and Young People
cART	Combination Antiretroviral Therapy
CPR	Contraceptive Prevalence Rate

CSE	Comprehensive Sexuality Education
DALYs	Disability Adjusted Life Years
FGM	Female Genital Mutilation
HAART	Highly Active Antiretroviral Therapy
HBV	Hepatitis B Virus
HCV	Hepatitis C virus
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HRH	Human Resource for Health
ICPD	International Conference on Population and Development
LARC	Long-Acting Reversible Contraception
LASUTH	Lagos State University Teaching Hospital
LCDA	Local Council Development Area
LGA	Local Government Area
LMP	Last Menstrual Period
LUTH	Lagos University Teaching Hospital
MHP	Menstrual Hygiene Practice
MSCH	Massey Street Children Hospital

NIMR	Nigerian Institute of Medical Research
PMTCT	Prevention of Mother-To-Child Transmission
PLHIV	People Living with HIV
PrEP	Pre-Exposure Prophylaxis
RH	Reproductive Health
SD	Standard Deviation
SEM	Social Ecological Model
SES	Socio-Economic Status
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health and Rights
STI	Sexually Transmitted Infections
STD	Sexually Transmitted Disease
UNAIDS	United Nations Joint Programme on AIDS
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
WCA	West and Central Africa
WHO	World Health Organization
YFHS	Youth friendly Health Services

Chapter One

1.0 Introduction

1.1 Background to the Study

Sexual and reproductive health (SRH) has been defined as a state of physical, emotional, mental and social well-being in relation to sexuality and reproduction, and not merely the absence of disease, dysfunction or infirmity. Implicit in this definition is ability to have a satisfying sex life, and the freedom to choose if, when, and how often to have children[1]. SRH is regarded by the World Health Organization (WHO) as a fundamental human right, and it is an integral part of overall health and well-being[2]. Components of SRH include access to appropriate information and education on safe and healthy relationships, access to contraception, fertility and infertility care, prevention and treatment of HIV and other sexually transmitted infections (STIs), and prevention of gender-based and intimate partner violence. Sound SRH is embedded in the recognition of the rights of individuals to make decisions about their own sexual and reproductive lives, while respecting the decisions of others[3].

Adolescents and young adults (AYA) are individuals aged 10-24 years. They are loosely divided into young adolescents (10-14 years), older adolescents (15-19 years), and young adults/post adolescents (20-24 years). AYA are the largest they have ever been at 1.8 billion and 22.5% of the global population in 2023[4]. Adolescence is the period between childhood and adulthood, and is characterized by physical and psychological transformation, quest for independence, and exploratory and risk-taking behavior. Although generally a healthy age-group, these attributes of adolescents predispose them to preventable morbidity and mortality from injuries, substance abuse, HIV and other

sexually transmitted infections, and unsafe sex, unplanned pregnancy, and poor pregnancy outcomes. About 12 million adolescent girls give birth each year, especially in developing countries, and complications from these teenage pregnancies and childbirth are a leading cause of death among older adolescent girls[5].

The sexual and reproductive health needs of adolescents and young adults however, was long neglected, until the International Conference on Population and Development (ICPD) in Cairo, Egypt in 1994 highlighted the need for the United Nations (UN) to focus attention on adolescent sexual and reproductive health (ASRH). The conference recommended that adolescents should be offered appropriate information and services to help them understand their sexuality and be protected from sexually transmitted diseases and unwanted pregnancies[6]. The years since the ICPD has witnessed some improvement in certain ASRH indices such as delayed sexual debut and child bearing and improved contraceptive use. This is improvement has been slow and there have been marked disparities between countries and regions [7]. Some of the challenges to optimal ASRH result from cultural, socio-economic, and structural barriers that hinder access to information and services for young people.

The recognition that these young people are the parents of tomorrow and that failure to address their SRH needs has intergenerational consequences contributed to the inclusion of universal access to sexual and reproductive health services including family planning, information and education, and integration of reproductive health into national

programmes as a target of the United Nations Sustainable Development Goal 3 (SDG 3) to be achieved by 2030[8].

Adolescents and young adults living with HIV (AYLHIV) are a growing population comprising perinatally infected children who have survived to adolescence and young adulthood as a result of effective combination antiretroviral therapy (cART), and horizontally infected adolescents and young adults[9, 10]. The World Health Organization estimates that of the 39.9 million people living with HIV in 2023, 1.5 million were adolescents aged 10-19 years and 2.3 million were youth aged 15-24 years, about 90% of whom lived in SSA[11]. These AYLHIV have the worst HIV treatment outcome in terms of adherence to antiretroviral therapy, viral suppression, and retention in care with dire consequences of disease progression, development of antiretroviral drug resistance, transmission of infection to sexual partners and children and increased HIV related mortality[12]. West and Central Africa (WCA), which includes Nigeria, contributes significantly to the poor HIV indices from SSA, and is not on track to meet the targets of the United Nations Sustainable Goal 3 of ending the HIV epidemic by 2030. The period between 2010 and 2016 saw an increase in AIDS-related mortality in young people, while there was a decrease in all other age groups[13].

Poor sexual and reproductive health significantly contributes to the poor treatment outcome of AYLHIV. The added vulnerabilities of living with HIV place AYLHIV at increased risk for unsafe sex and its negative consequences[14]. A major thrust of adolescent sexual and reproductive health is prevention of HIV. Being already HIV-

positive and lacking requisite knowledge of other STIs, poor risk perception from unsafe sexual practices exposes AYLHIV to other STIs, unplanned pregnancies and their, often negative, outcome. HIV increases the risk of acquisition of STIs and STIs enhance HIV disease progression [15]. Unplanned pregnancies in adolescent girls and young women is a huge challenge, globally and leads to unsafe abortion, school dropout, or being driven out of the home. These can lead to not only discontinuation of HIV care and treatment, but also mental health challenges like anxiety, depression and suicidal ideations[16], reduced marriage prospects, and poor economic outlook. Pregnancy and childbirth in adolescent girls are often associated with poor maternal and infant outcomes, with increased maternal mortality, preterm birth and low birth weight, and increased neonatal and infant mortality[17]. Long-term effects of poor SRH include chronic diseases like liver cirrhosis and cancer from Hepatitis B virus (HBV), cervical cancer from human papillomavirus (HPV), and risk of neurodevelopmental disorders, cardiovascular and metabolic diseases in offspring born premature and with low birthweight[18]. These make them more vulnerable to mental health challenges, such as anxiety and depression and sexual and reproductive health issues than their HIV-uninfected counterparts.

Gender inequalities, sociocultural beliefs and norms with regards to SRH of young people, and low socio-economic status all combine to aggravate the challenges highlighted above. The cultural belief that open discussions of SRH predispose young people to sexual exploration and promiscuous behaviour, stigma and discrimination attached to premarital pregnancy, paucity human resource for health (HRH) in the areas

of adolescent communication and SRH provision for young people, inadequate SRH commodities, and criminalization of abortion all relegate SRH to the background.

In the face of these challenges, it is important to assess gaps in knowledge and experience of SRH of young people with HIV in order to develop and deploy targeted interventions to bridge the gaps.

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1.2 Statement of the Problem

Nigeria, the most populous nation in sub-Saharan Africa with an estimated population of 223 million in 2022, has the 4th largest HIV epidemic globally with 2 million people living with HIV in 2022. Adolescents and young adults aged 10-24 years accounted for 32.9% of the population of Nigeria in 2022, and with an HIV prevalence of 0.3% among adolescents and 1.3% among young adults, AYA constitute a significant proportion of people living with HIV in Nigeria in 2022[19,20].

These AYLHIV face biological, cultural, socio-economic and structural challenges that increase their vulnerability to suboptimal SRH outcome and poor quality of life. Biological vulnerability to HIV acquisition, especially in adolescent girls contributes to the higher prevalence of HIV in female AYA compared to males. This vulnerability also makes them more susceptible to other STIs. Stigma and discrimination, poor socioeconomic circumstances, inadequate education, lack of negotiation skills and poor

or non-existent social support networks also predispose them to low self-esteem and high-risk sexual behaviours like transactional sex, inter-generational sex, condomless sex and multiple sexual partnership, all of which increase the risk of early unintended pregnancy, acquisition of sexually transmitted infections and gender-based violence (GBV) with their adverse short and long-term physical, mental and social consequences[21, 22].The negative consequences of poor sexual and reproductive health also lead to poor adherence to HIV care and treatment, no viral suppression and development of drug resistance, as well as increased risk of disease transmission and persistence of the HIV epidemic which is inimical to attainment of SDG 3. All this would place an added burden on our already fragile health system. All these make it imperative to identify and fill gaps that militate against optimal SRH of AYLHIV.

Suboptimal sexual and reproductive health of adolescents and young adults with HIV, therefore, has negative individual, family, community, national and global consequences. This study will help identify the SRH needs, i.e. gaps in the knowledge, attitude and experience of AYLHIV, which will contribute to the development and deployment of targeted strategies to address the challenges.

1.3 Justification of the Study

Adolescents and young adults in Nigeria are vulnerable to adverse sexual and reproductive health outcomes. Early sexual debut, which has been estimated at 15-16 years in Nigeria puts adolescents at risk of unintended pregnancies, unsafe abortions and STIs. These AYAs are also often underserved in the provision of SRH services, and the

high prevalence of complications from early pregnancy, unsafe abortions, and childbirth contribute to Nigeria's high maternal mortality rate, the second highest in the world[23].

Unsafe sex is at the heart of adverse SRH outcomes among young people. Inadequate education, poor risk perception, and poor SRH services put adolescents and young adults at risk. Contraception, which is the deliberate use of methods to prevent pregnancy from sexual intercourse is essential to the sexual and reproductive health of young people. Barrier contraceptives like condoms also offer protection from HIV and other STIs in addition to pregnancy prevention. However young people have demonstrated poor knowledge of, and access to modern contraceptive methods. The overall contraceptive prevalence rate (CPR) among AYA in sub-Saharan Africa is only 25.4% [24]. However, there is a wide disparity between countries with the highest rate of 60.5% in Namibia and the lowest rate of 4.0% in Chad. The CPR of AYA from the Nigeria Health and Demographic Survey of 2018 was 4.2% for adolescent girls aged 15-19 years and 8.4% for young women (20-24 years), highlighting the need to develop strategies to increase the CPR among the youth in Nigeria[25].

Nigeria is also the 4th highest HIV burden country globally and the 2nd in Africa. Adolescent and young people (aged 10-24 years) make up about a third of Nigeria's estimated population of 223 million in 2022. With an estimated HIV prevalence of 1%, adolescents and young people make up a significant proportion of the 2 million people living with HIV in the country in 2022.

Adolescents and young adults with HIV are doubly challenged, navigating the diverse physical and psychological transformations of adolescence and young adulthood as well

as the challenges of living with a chronic stigmatizing condition requiring life-long therapy. AYLHIV also have the worst HIV care and treatment indices such as adherence to ART, viral suppression, retention in care, and mortality. AS a result, the emphasis of health information and services for them has been majorly centered on the strategies to improve self-efficacy in HIV care, provision of support for HIV status disclosure, and improve drug adherence, viral suppression and retention in retention in care[26]. Although the SRH of AYLHIV is now receiving more attention globally, social, cultural and health system barriers to accessing SRH knowledge and services in some areas still hamper the optimization of SRH for these young people[21].

The adolescent birth rate in Nigeria is 77/1000 adolescent girls and this is almost double the global average of 39/1000 adolescent girls aged 15 to 19 years[27, 28]. This evidence of high adolescent pregnancy and birth rate puts adolescent girls in Nigeria at risk of negative health and social impacts. It can result in family rejection and community stigmatization, forced marriage, and school dropout, with subsequent reduced employment and economic prospects, and quality of life. To avoid the stigma and other social consequences of early pregnancy, many of these adolescent girls resort to unsafe abortion, complications of which could be physical and mental, as well as short-term and long term. Immediate physical complications include haemorrhage, acute infection, and even death. Sub-acute pelvic inflammatory disease from an unsafe abortion could lead to adhesions and fertility challenges in future. The guilt associated with having an abortion could last a life time and predispose one to mental health challenges like anxiety depression and suicidal ideation. Even when the girls decide to keep the pregnancy,

teenage pregnancy is associated with increased rates of complications such as pre-eclampsia and eclampsia, preterm delivery, birth complications and increased maternal and infant morbidity and mortality[29]. Nigeria has one of the highest maternal mortality ratios globally, at 512 maternal deaths per 100,000 live births accounting for about 14% of global maternal mortality[30].

There is an also increasing prevalence of sexually transmitted infections among adolescents and young adults. Information on, and tools used in assessing SRH prevention practices dwell more on prevention of HIV than other STIs. Adolescents and young adults with HIV, therefore have poor STI risk perception with regards to unsafe sex as they are already infected with HIV[31, 32]. Adolescent girls with HIV are particularly vulnerable because of some biological and socioeconomic factors. They may engage in intergenerational and transactional sex, increasing the risk of acquisition of many STIs. In addition, being HIV infected increases the risk of acquiring an STI[22].

The short- and long-time impact of unplanned pregnancies and STIs, including cancers and increased vertical and horizontal HIV transmission exert a huge toll not only on the individual and the community but could also overwhelm or fragile health system.

Sexual and reproductive health is a fundamental human right of all adolescents and young adults. However, adolescent and young adult males are usually neglected in sexual and reproductive health research and services, and they traditionally have higher sexual risk behaviour than their female counterparts[33]. Most often this is because the consequences of unsafe sex and other poor SRH choices are more easily visible in

females. Females are the ones that get pregnant and suffer the consequences of unwanted pregnancy. Adolescent and young adult males are majorly only involved in studies on condom use and STI knowledge and prevention. However other aspects of SRH such as knowledge of reproductive biology, intimate partner violence with the male as a victim, and even relationship vulnerabilities of the male are under researched. The inclusion of adolescent boys and young men in SRH research satisfies gender equity, a key target of SDG 3, and serves to highlight their beliefs and practices, especially with regards to safe sex and gender-based violence[34]. Optimization of adolescent and young adult SRH is not possible without the inclusion of adolescent boys and young men.

While the SRH needs of AYLHIV have been the topic of interest in several fora and research projects, it is well understood that there are contextual and locational differences which affect norms, beliefs and practices[6,35]. These contextual nuances need to be taken into consideration in the planning of interventions. Assessing the SRH needs of AYLHIV in the Nigerian context will enable identification of priority areas for targeted intervention to engender empowerment and optimal health among these vulnerable young persons.

1.4 Aim and objectives of the Study

The main aim of the study was to determine the sexual and reproductive health needs of adolescents and young adults living with HIV in Lagos Nigeria, through their SRH knowledge, attitude, and experiences.

Specific Objectives:

1. To determine the knowledge of reproductive biology, pregnancy and contraception, and sexually transmitted infection among AYLHIV in Lagos, Nigeria.
2. To determine the factors associated with knowledge of SRH among AYLHIV in Lagos, Nigeria
3. To ascertain the attitude of AYLHIV to sexual and reproductive health and factors associated with SRH attitude
4. To determine the SRH experiences of AYLHIV in Lagos, Nigeria
5. To determine the menstrual health of adolescent girls and young women living with HIV in Lagos, Nigeria
6. To ascertain the perceptions of AYLHIV on SRH service delivery at Adolescent and Youth Friendly Clinics

1.5 Research Questions

1. What is the level of knowledge on reproductive biology, pregnancy and contraception, and STIs among adolescents and young adults living with HIV in Lagos, Nigeria?
2. What are the factors that influence SRH knowledge among the study population?
3. What are the attitudes of AYLHIV in Lagos, Nigeria to sexuality and gender issues?
4. What are the patterns of sexual and reproductive health experiences of AYLHIV in Lagos Nigeria?
5. What are the menstruation experiences of adolescent girls and young women living with HIV in Lagos Nigeria?

6. What are the perceptions of AYLHIV on SRH service provision at the Adolescent and Youth Friendly Clinics at their HIV care facilities?

1.6 Hypotheses

Null Hypothesis 1: There are no differences in the knowledge and experience of, and attitude to of SRH among male and female AYLHIV in Lagos, Nigeria.

Null Hypothesis 2: There are no differences in the knowledge and experience of, and attitude to of SRH among adolescent and young adults living with HIV in Lagos, Nigeria.

1.7 Significance of the Study

AYLHIV make up a significant proportion of people living with HIV in Nigeria. Nigeria, with the largest HIV epidemic in the West African sub-region failed to meet the UNAIDS 90-90-90 goal by 2020. The challenges of managing the epidemic in adolescents and young adults, who make up about a quarter of new infections and in whom mortality figures have stagnated contributed to this failure to reach the 2020 goal[36]. Sexual and reproductive health challenges faced by AYPs, including poor knowledge, negative attitude, and unsafe sexual practices and their sequelae, together with limited access to SRH services contribute to poor HIV treatment and sexual and reproductive health outcomes.

Knowledge of the specific needs of AYLHIV in the Nigerian context will enable the development and deployment pf targeted interventions to optimize the health wellbeing and future prospects of AYLHIV.

1.8 Scope of the Study

This cross-sectional, quantitative study was carried out in the four largest HIV care and treatment centres in metropolitan Lagos providing services to AYLHIV from all over Lagos and the neighbouring Ogun State. Respondents were male and female, in-school and out-of-school, urban and sub-urban dwelling, and perinatally and horizontally infected AYLHIV.

A world Health Organization validated questionnaire was used to collect data from AYLHIV, accessing HIV services from the four study centres on SRH knowledge, attitude and experiences.

The study assessed the knowledge and experiences of AYLHIV in reproductive biology, menstruation and contraception, and sexually transmitted infections as well as factors associated with these. The study also assessed attitudes to sexuality and gender issues, and among AYLHIV. The prevalence and factors associated with intimate partner violence among respondents was evaluated, and finally, the menstruation experience and menstrual hygiene practice was assessed among respondents. The study findings has revealed gaps in the areas of SRH knowledge, attitude and experience and this will hopefully contribute to development of targeted interventions to meet the identified needs.

1.9 Limitations of the Study

The study has highlighted gaps in SRH knowledge and practice among AYLHIV. However, it was a quantitative study and had the following limitations.

1. The sensitive nature of the questions and the self-administration of the data collection tool resulted in some respondents not providing all the required responses. The addition of 15% of the calculated minimum sample size of 377 hopefully mitigated this limitation to a large extent.
2. The study, though multi-centered was carried out in only one state (Lagos), and this may limit the generalization of study findings to the entire nation.
3. A mixed method study design may have allowed further exploration of the SRH perceptions, experiences and challenges of young people living with HIV.

1.10 Operational definition of terms

Sexual and Reproductive Health: a state of complete physical, mental, and social well-being in all matters relating to the reproductive system and its functions (WHO).

Adolescent: a human being aged 10-19 years.

Young Adult: a human being aged 20-24 years

Youth: a human being aged 15-24 years

Young person: a human being aged 10-24 years

One-night stand: otherwise known as "hook-up", this is a sexual relationship lasting only one night with someone one does not want to see again romantically.

Perinatal or vertical HIV Infection: acquisition of HIV from the mother while in the womb, during labour and delivery, or after delivery through breast feeding.

Horizontal HIV Infection: acquisition of HIV mainly through sexual activity, but also from use of contaminated needles and transfusion of blood and blood products.

Transactional Sex: exchange of sex for something of value which could be money, material goods, service or other benefit.

Contraceptive: methods or devices used to prevent pregnancy

Sexually transmitted infection (STI): an infection transmitted from one person to another through sexual intercourse.

Inconsistent condom use: not using condom for every sexual activity

Multiple sexual partnership: having more than one sexual partner within a specific period of time, either concurrently or sequentially

Romantic Relationship: a close intimate connection between two people, characterized by strong feelings of love and attraction, with or without sexual intimacy.

Intimate partner violence (IPV): abuse or aggression that occurs in a romantic relationship, an intimate partner can refer to current and former romantic partners.

Risky sexual behaviours: a range of hazardous sexual practices that increase risk of unplanned pregnancies and STI transmission, such as early sexual debut, unprotected sex, and transactional sex, and multiple sexual partnership.

Sexual debut (coitarche): experience of sexual intercourse for the first time by a male or female.

Sexual intercourse: vaginal, anal and oral penetration, between at least two individuals.

Comprehensive sexuality education: provides accurate, age-appropriate, and holistic information about sexuality, relationships and reproductive health, especially to young people.

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Chapter Two

2.0 Literature Review

2.1. Adolescents and Young Adults

Adolescents and young adults (AYAs) are defined as individuals aged 10 years to 24 years. They are also referred to as young people and are loosely divided into 3 groups, some of which overlap.

1. Adolescents: aged 10-19 years,
2. Young adults: aged 20-24 years, and
3. Youth: aged 15-24 years.

Adolescents are further divided into young adolescents (10-14 years) and older adolescents (15-19 years), and young adults are also sometimes referred to as post adolescents[1, 2].

Adolescents and young adults are the most numerous they have ever been in history, numbering approximately 1.8 billion in 2020, and projected to reach almost 1.9 billion by 2050; about 90% of these young people live in developing countries. About a quarter of the global population of young people (~429,000) live on the Africa continent and made up almost a third (29%) of Africa's population of almost 1.5 billion people in 2023[2, 3]. Nigeria has a very young population, and young people make up 33.4% of the estimated 232 million population of the country in 2024[4]. Adolescence and young adulthood therefore make up a huge proportion of the global population signifying the importance of ensuring their health and wellbeing.

2.1.1. Characteristics of Adolescents and Young Adults (AYAs)

Adolescence and young adulthood constitute a bridge period between childhood and full adulthood. It is a unique transition period characterized by major physical, emotional, psychosocial and cognitive changes, manifesting in development of abstract and critical thinking capabilities, quest for independence, formation of relationship networks outside the family, and experimental and exploratory behavior[5]. It is a significant developmental stage and habits and patterns of behavior formed in adolescence, not only have life-long impact but significantly affect the next generation.

Inadequate or inappropriate information, guidance, and support, in conjunction with exploratory and risk-taking tendencies predispose young people to taking uninformed decisions and making poor choices often resulting in injuries, violence, substance use and the negative consequences of unsafe sex[1, 6]. However, adolescence is also a period of opportunity, during which, with the right information, support and guidance, young people can develop health-promoting behaviours that last through life and help create a healthier society[7]. It is therefore imperative that appropriate and accurate information and services, including sexual and reproductive health related information and services, be provided and made accessible to AYAs to help them navigate successfully through this critical period of development.

2.1.2 Health Challenges of Adolescents and Young Adults

The period of adolescence and young adulthood is generally associated with the lowest mortality rate in the life course. Nevertheless, about 4,500 young people died per day in 2021. Among adolescents and young adults, mortality rates are lowest in young

adolescents (ages 10-14years) and highest in young adults (ages 20-24 years); females are also less likely to die than males. Across the WHO regions, sub-Saharan Africa (SSA) has the highest mortality rates among AYAs, and chances of a 10-year old in SSA dying before age 24 years is 6 times higher than for one in Europe and North America [1].

Major causes of death in AYAs were majorly due to communicable diseases (diarrhoeal illness, tuberculosis and lower respiratory infections), injuries (road injuries, drowning, violence and self-harm), maternal and nutritional conditions (pregnancy and birth complications, anaemia) and non-communicable diseases, while the major causes of illness and disability adjusted life years (DALYs) are mental health problems (behavioural disorders, anxiety and depression) and nutritional disorders (anaemia, eating disorders, and obesity) [8, 9].

In sheer numbers, injuries claimed more adolescent lives than any other cause in 2021. Road injuries claimed more than 100,000 adolescent lives, 40,000 died of drowning (majority of them boys) to road injuries in 2021, and each year 193,000 homicides, majorly involving male victims, occur in people aged 15-29 years. Suicide was is another injury-related cause of death and the 3rd leading cause of death among people aged 15-29 years in 2021. Suicide deaths are more common in females than males and the rates vary across countries and regions, with the highest rates in the USA and the lowest in Southern Europe. A review of data from the United States Centers for Disease Prevention and Control (CDC), in 2017, showed that suicide claimed the lives of 6,241 youth aged 15-24 years., more than 80% of whom were males, in the United States. The review also noted an increasing trend of suicide rates among young people from 2000. However, about three-quarters of suicides occur in low- and middle-income countries (LMICs) [10,11].

Injuries exert a huge toll on not only young people who lose their lives but on those injured, the family and the society. Most injury-related deaths are preventable and efforts at prevention through education, appropriate gun control, and effective management of mental health conditions will ameliorate the scourge of injuries on young people and the society.

Communicable diseases, such as HIV, tuberculosis, diarrhoeal diseases, pneumonia, and measles are also significant causes of mortality in young people, especially young adolescents aged 10-14 years. Most of these diseases are preventable by vaccination and there is effective treatment for all of them. Ensuring optimal immunization coverage of children and improving prompt diagnosis and appropriate treatment of these conditions will spare the lives of young people and contribute to the achievement of the United Nations (UN) Sustainable Development Goals (SDGs).

Adolescents and young adults are also challenged with alcohol and drug use, mental health conditions, and sexual and reproductive health problems. More than a quarter of adolescents aged 15-19 years drink alcohol, with the prevalence of heavy drinking being 13.6% among this cohort in 2016. Alcohol use is usually associated with use of other substances of abuse, with cannabis being the most commonly used such drug. The combination of alcohol and drug use cognitive challenges leading to impairment of judgement and high-risk behaviours resulting in injuries and other adverse social and academic consequences [1, 12].

Mental health disorders like depression and anxiety are leading cause of disease and disability among young people, and depression is set to become the leading cause of DALYs in 2030. Studies show that about half of all mental health disorders have their

onset in adolescence although majority go unrecognized during this period. Every effort must therefore, be made to prevent and manage mental health conditions in adolescents and young people [1,13].

Poor sexual and reproductive health contributes significantly to adolescent and young adult morbidity and mortality. Early sexual debut, and unprotected sex, and lack of contraception predispose adolescents to early unintended pregnancies and acquisition of sexually transmitted infections, including HIV/AIDS and their adverse impact on the health and wellbeing of young persons. Pregnancy and birth complications are a significant cause of mortality among girls aged 15-19 years globally. Most of these deaths occur in sub-Saharan Africa and threaten the achievement of the UN SDGs. Preventing these SRH adverse consequences would enable the health and wellbeing of not only adolescent girls and young women, but also their offspring and society at large[1, 14].

2.2 Adolescents and Young Adults living with HIV (AYLHIV)

HIV infection in adolescents and young adults remains a global public health concern, as AYA represent a growing proportion of people living with HIV worldwide. Access to effective combination antiretroviral therapy (cART) has enabled children perinatally infected with HIV to survive to adolescence and young adulthood and beyond. Horizontally acquired HIV infections also help to boost the number of AYAs with HIV[15, 16]. Of the 1.3 million new HIV infections in 2023, 370,000 (28.5%) were in AYAs, who make up only about 8.6% of the global population of people living with HIV[17, 18].

The World Health Organization estimates that of the 39.9 million people living with HIV in 2023, 1.5 million were adolescents aged 10-19 years and 2.3 million were youth aged 15-24 years, about 90% of whom lived in SSA[19]. Nigeria, the most populous nation in sub-Saharan Africa with an estimated population of 223 million in 2022, has the 4th largest HIV epidemic globally with 2 million people living with HIV in 2022. Adolescents and young adults aged 10-24 years accounted for 32.9% of the population of Nigeria in 2022, and with an HIV prevalence of 0.3% among adolescents and 1.3% among young adults, AYA constitute a significant proportion of people living with HIV in Nigeria in 2022[20, 21].

AYLHIV have the worst HIV care and treatment indices globally and perform poorly in all areas of the UNAIDS 95-95-95 goal, which states that by 2025, 95% of people living with HIV should know their status, 95% of those who know their status should be on ART and 95% of those who know their status should be virally suppressed[22]. This goal is geared towards ensuring that the United Nation's Sustainable Development Goal (SDG) 3.3 of ending the HIV/AIDS epidemic by 2030 is realizable[23]. AYA are less likely to be tested, linked to, and retained in HIV care. They are also less likely to adhere to antiretroviral therapy and be virally suppressed. Consequently, new infections and mortality continue to be of major concern in AYAs[24].

2.2.1 Health Challenges of AYLHIV

Several challenges facing people living with HIV (PLHIV) stem from the disease itself, its treatment, and the stigma and discrimination associated with it. Untreated HIV infection leads to AIDS, with chronic opportunistic infections (such as tuberculosis and

cryptococcosis), and AIDS-related cancers and organ dysfunction including neurocognitive disorders. Side effects of some antiretroviral drugs negatively impact metabolic, hepatic and renal functions. The stigma and discrimination associated with the HIV infection can predispose to mental health issues among PLHIV[25, 26].

For adolescents and young adults, additional challenges are occasioned by poor adherence to treatment leading to non-viral suppression, disease progression, development of drug resistance, increased transmission of infection to sexual partners and offspring and increase in AIDS-related mortality [27]. These have negative implications for achievement of SDG 3.3

2.3 Sexual and Reproductive Health in Adolescents and Young Adults

Sexual and reproductive health (SRH) has been defined by the World Health Organization (WHO) as a state of complete physical emotional and social wellbeing in relation to sexuality and reproduction and not just the absence of disease, dysfunction or infirmity. It incorporates the ability of individuals to have a satisfying sex life and the freedom to choose if, when and how often to have children[27, 28, 29]. SRH is a fundamental human right and an integral part of wellbeing, as affirmed by the International Conference on Population and Development (ICPD) in Cairo, Egypt in 1994. The ICPD set a goal to make reproductive health accessible, through the primary health-care system, to all individuals of appropriate ages by year 2015[30]. This goal has been reaffirmed by the United Nations Sustainable Development Goal (SDG) 3.7 to ensure universal access to sexual and reproductive healthcare services by 2030 [23].

Sexual and reproductive health encompasses information and education on safe and healthy relationships, access to contraception, fertility and infertility care, prevention and treatment of HIV and other sexually transmitted infections (STIs), and prevention of gender-based and intimate partner violence. Adolescent sexual and reproductive health (ASRH) is the physical and emotional wellbeing of young people in relation to their sexuality and reproductive functions. The Guttmacher Lancet commission on sexual reproductive health and rights (SRHR) for all recommends nine essential interventions as part of a comprehensive package of SRHR. These include (1) comprehensive sexuality education (CSE) (in and out of school), (2) counselling and services for a range of modern contraceptives, (3) antenatal, childbirth and postnatal care, including emergency obstetric and newborn care, (4) safe abortion services and treatment of the complications of unsafe abortion, (5) prevention and treatment of HIV infection and other STIs, (6) prevention of, detection of, immediate services for, and referrals for cases of sexual and gender-based violence, (7) prevention, detection and management of reproductive cancers, especially cervical cancer, (8) information, counselling and services for subfertility and infertility, and (9) information, counselling and services for sexual health and well-being[31].

Adolescent sexual and reproductive health (ASRH) has been defined as the physical and emotional wellbeing of young people in relation to sexuality and reproductive functions. It is a specifically recognized and distinct aspect of SRH dealing with adolescents and young adults, not only because adolescents and young adults make up a significant proportion of the population, especially in low- and middle-income countries but also because the health of adolescents is critical for the social and economic development of

societies, and it has an impact on the health of future generations [32]. This is particularly relevant to sub-Saharan Africa where adolescents and young adults make up 32% of the population [33]. ASRH is focused on provision of information and services to informed decisions and positive choices to forestall adverse SRH outcomes like early and unintended pregnancies and sexually transmitted infections, including HIV and AIDS.

Lack of provision of information and services on SRH to young people predisposes them to early sexual debut, unprotected sex, and multiple sexual partnership and intergenerational sex. The adverse consequences of these poor choices have health, social and economic implications not just for the individual but for the family, the society and even future generations.

While the above highlighted issues are general to all adolescents and young adults, adolescents and young adults living with HIV have unique characteristics that increase their vulnerabilities to poor SRH decisions and actions, with more significant negative impact for them.

2.3.1 Sexual and Reproductive Health of AYLHIV

Adolescents and young adults with HIV are living with a chronic, stigmatizing condition requiring life-long adherence to drugs. In addition, especially for those perinatally infected, the effect of HIV on growth and pubertal development may have given ALHIV a poor and negative self-image[34]. Also, being HIV positive increases vulnerability to acquisition of other STIs and while HIV is not specifically a disease of poverty, the adverse consequences of living with HIV are more prevalent in those from low

socioeconomic settings[35]. Finally, about a third of ALHIV in sub-Saharan Africa have been orphaned by the disease and so have been deprived of parental care and support, thus increasing their vulnerabilities[36].

The focus of care and attention for AYLHIV has been on the care and treatment of HIV infection with special emphasis on adherence to antiretroviral therapy, to the neglect of other matters including sexual and reproductive health. To compound this, the prevention of HIV in adolescents and young adults was the initial focus of attention with regards to adolescent and youth SRH. Adolescents and young adults already living with the disease were therefore initially ignored in the provision of SRH information and services[37]. In Nigeria for example, although several policy documents on young people and HIV have been developed, with focus on HIV prevention and epidemic control, the SRH needs of AYLHIV have been scarcely addressed[38].

However, although AYLHIV experience the same SRH challenges like their non-HIV infected counterparts, the adverse consequences of poor SRH choices, have more devastating health and social consequences on AYLHIV. This realization has led to the development of programmes and policy documents focusing on the SRH needs of adolescents and young adults with HIV[39]. I will discuss the general issues with adolescent and young adult sexual and reproductive health and then look at their impact on AYLHIV.

2.3.2 Predictors of Adverse SRH Outcome in AYAs

2.3.2.1 Early Sexual Debut

Early sexual debut has been defined as sexual initiation before the age of 15 years[40, 41]. The prevalence of early sexual debut is said to vary between 5% and 27 % globally but is said to be more prevalent in low-income countries[42]. A study among youth females from 8 African countries gave a prevalence range of 16,7% to 71.7%[43]. However, another survey among male and female AYAs across 5 countries in SSA, including Nigeria, yielded lower rates of 8.6% to 17.7% [39]. Other studies in Nigeria found rates between 46% to 76.9%[41,45,46].

Early sexual debut could result from low socio-economic circumstances, cultural norms like early marriage, lack of comprehensive sexuality education and poor SRH knowledge, peer pressure, and lack of lack of agency to say no to sex[42, 47]. While previously more prevalent among adolescent females, involving older male partners, the pattern appears to be shifting towards more male adolescents and same sex interactions[48]. It associated with unprotected sex, coercive sex, multiple sexual partnership and intergenerational sex[42, 44]. This predisposes young people to early and unintended pregnancies and sexually transmitted infections including HIV. The anatomy of the developing female reproductive tract in early and mid-adolescence also enhances the acquisition of HIV and other STIs, thereby exacerbating the problem[49].

2.3.2.2 Poor Knowledge of SRH

Accurate knowledge of sexual and reproductive health is foundational to taking informed decisions and making healthy choices. Lack of information on reproductive biology including pregnancy, contraception and sexually transmitted infections including HIV

predispose young people to making wrong choices with dire consequences. Adolescents and young people have been shown in several studies to be poorly informed about SRH and this contributes to the high prevalence of adverse SRH outcomes like unplanned pregnancies, unsafe abortions, poor pregnancy and birth outcomes, and sexually transmitted infections[37, 46, 50, 51]. Lack of information on sexual and reproductive health adversely affects decisions and choices.

Factors found to be predictive of poor knowledge of SRH include lower levels of education and lack of comprehensive sexuality education (CSE), also known as Family Life and HIV Education (FLHE) in Nigeria, younger age, cultural barriers to discussion of SRH at home or school, lower socioeconomic status, myths and misconceptions, especially about contraceptives, and poor availability and access to SRH services, including lack of trained manpower[51, 52, 53].

Strategies to provide age appropriate SRH information and education to both in-school and out-of-school adolescents and young adults, addressing norms that limit access to information for young people, debunking myths and falsehoods about SRH through channels such as mass media, economic empowerment of young people and their families, and provision of accessible, affordable, and youth friendly SRH services including counselling will help to improve knowledge of SRH among young people.

2.3.2.3 Poor Access to SRH Services

Although attention has been focused on the need to provide services to address the sexual and reproductive health vulnerabilities of adolescents and young adults since the International Conference on Population and Development in 1994 in Cairo, Egypt, access to, and utilization of these services remain suboptimal across the globe[38, 46].

Access to SRH information and services is essential for the acquisition of SRH knowledge and obtaining relevant services like contraceptive services, pregnancy and abortion care, testing and treatment of STIs, and ensuring overall wellbeing of adolescents and young adults. These Comprehensive sexuality education (CSE) also called Family Life and HIV Education (FLHE) in Nigeria, a programme taught at the secondary school level in Nigeria is a good starting point for providing accurate information on reproductive biology, self-esteem, contraception, pregnancy and abortion as well as gender issues. One of the drawbacks to the programme is its restriction to schools, thereby robbing out-of-school adolescents of the benefits.

However, individual, cultural, and structural barriers to accessing these services, especially for AYLHIV remain. Inadequate provision of these services, lack of awareness of their existence, distance to the facilities, cultural norms that frown at young people seeking for information or service regarding SRH, myths and misinformation on the deleterious effects of contraceptives, financial constraints, skill and attitude of healthcare workers and confidentiality issues (fear of disclosure to parents and caregivers), actual or perceived stigma and discrimination, and criminalization of certain services like abortion all hamper access to SRH services[54, 55, 56, 57].

2.3.3 SRH Experiences of AYLHIV

2.3.3.1 Early and Unplanned Pregnancy

Early and unplanned pregnancy is one of the adverse SRH outcome of uninformed and poor choices made by AYLHIV. It stems from early sexual debut and lack of knowledge

of, and use of contraception. Adolescent pregnancy is of public health concern as it is a major cause of maternal and neonatal mortality.

Globally about 21 million adolescent girls (aged 15 -19 years) become pregnant each year. Most of these pregnancies occur in developing countries, about half of them are unwanted, and they result in 12 million births each year. Although there has been a steady decline in global ABR form 64.5/1000 adolescent girls aged 15-19 years in 2000 to 41.3/1000 in 2023, ABR remains high in some regions, notably sub-Saharan Africa, the Caribbean, and Latin America. The highest rate of 97.1/1000 is in sub-Saharan Africa, more than two times the global average[58]. Teen pregnancies are highest in countries with early marriage, poor educational opportunities for girls and young women, and low contraceptive prevalence rate among AGYW. In Africa, the highest rates are in Niger, Mali, and Chad with rates exceeding 200 births/1000 girls aged 15-19 years[59]. It is estimated that by 2035, 67% of adolescent births will be in the WHO Afro region[60].

Factors associated with adolescent pregnancy are diverse. A systematic review of studies from all regions of Africa found that factors significantly associated with adolescent pregnancy were ever being married, rural residence, being out of school, poor parental education, and lack of sexual and reproductive health communication with parents. This is similar to the causes of other adverse SRH outcome in young people showing that addressing these issues would greatly reduce adolescent pregnancy and birth rates[61].

Social and economic challenges also result from this unplanned for consequence of unprotected sex. Family rejection and withdrawal of care can lead to school dropout, living on the street and therefore falling prey to miscreants on the street, sexual

exploitation, transactional sex, sex trafficking and becoming a prey of the "baby factory" boom in Nigeria, for instance. Dropping out of school limits educational attainment and adversely affects future earning power, portending low socio-economic status for the individual and her future family. Because low socio-economic status is a predictor of adolescent pregnancy, the effects of teenage pregnancy could lead to intergenerational poverty. Premarital pregnancy also reduces future marriage prospects of the affected adolescent and young person. Being pregnant out of wedlock can induce the parents and caregivers to marry off the girl to a much older man of poor economic circumstances and inability to afford proper marital rites for a woman, or one with issues of infertility in a current marriage. All these portend unfulfilled dreams, unhappiness and mental health challenges like depression and suicidal ideation in pregnant AGYW[62, 63].

One of the consequences of early unintended pregnancy is abortion. More than half of unintended adolescent and young adult pregnancies are aborted, and a significant proportion of these abortions is unsafe. A report on abortion in adolescents in Africa noted that developing countries register 98% of unsafe abortions, 41% of which occur in adolescent girls and young women. Furthermore, 70% of hospitalizations for unsafe abortions are in girls aged less than 20 years; adolescent girls also make up nearly a third of all abortion-related deaths[64, 65]. The decision to abort a pregnancy is not an easy one for a young person, and stem from various factors such as shame and stigma of premarital pregnancy, pregnancy resulted from sexual violence, desire to continue education, lack of ability and resources to care for the child, and family and peer pressure [66].

The physically devastating potential consequences of unsafe abortion include cervical tearing, perforated uterus and bowel, hemorrhage, chronic pelvic infection and abscesses, endotoxic shock, renal failure, and death. The long-term sequelae include ectopic pregnancy, chronic pelvic pain, and infertility [54]. All these underscore the need to ensure availability and accessibility of emergency post-abortion care (PAC) services for adolescents and young adults.

Pregnancy among very young mothers is a significant problem; in LMICs, almost 10% of girls become mothers by age 16, with the highest rates in Sub-Saharan Africa and South Central, and Southeast Asia. Pregnancies among unmarried adolescent mothers are more likely to be associated with adverse outcome. Adolescents face a higher risk of complications and death as a result of pregnancy than older women. For example, an eClinicalMedicine (Lancet Discovery Science) study which examined data from 20 randomized control trials of micronutrients in pregnancy found an increased risk of preterm births, low birthweight, small for gestational age, and perinatal and neonatal mortality in adolescents compared to mothers aged 20-29 years[67]. A scoping review of studies from Africa found a higher risk of a plethora of complications such as poor antenatal access, pre-eclampsia, eclampsia, pre- and post-partum haemorrhage, gestational anaemia, gestational diabetes, obstructed labour, and maternal mortality among adolescent mothers[68]. However, a study from Iran showed no difference in access to antenatal services between pregnant adolescents and older women[69].

Early and unplanned pregnancies in AGYW living with HIV is also associated with an increased risk of mother-to-child transmission of HIV. Poor SRH outcome such as unplanned pregnancies are associate with poor HIV indices including poor adherence to

antiretroviral therapy, dropout from HIV care, and increased risk of disease transmission to off spring. A study from Zimbabwe showed that among 1,171 mother-infant pairs, the cumulative MTCT risk was 12%, 7.5%, and 6.9% respectively for adolescents (≤19 years), young women (20-24 years) and older women [70]. The use of antiretroviral drugs among the same cohort was also shown to be lower in adolescents and young adults (76.5% and 83.8% respectively) compared to older women (87.8%). No ARVs or poor adherence to ARVs in pregnancy is associated with high levels of circulating HIV virus (high viral load) and higher likelihood of transmission to offspring.

In particular, adolescent girls living with HIV who experience early and unplanned pregnancy also face the dual stigma and discrimination of premarital pregnancy and being HIV positive, as well as the challenges of HIV status disclosure, poor socio-economic status, unsupportive family/partner, lack of social support, and difficulty with navigating the ANC and PMTCT programmes, which are primarily designed for adult women[71]. They are thus more likely to have no or inadequate antenatal care, thus increasing the risk of MTCT, increasing the number of children with HIV, and further worsening the prospects of achieving SDG 3 of ending the epidemic by 2030. It is therefore imperative that strategies be developed and deployed to ensure that that pregnant adolescents living with HIV are enabled to receive optimal PMTCT services, in order to eliminate mother to child transmission of HIV in this vulnerable cohort.

With the foregoing complications of adolescent pregnancy and childbirth, the development of strategies to delay sexual debut and improve SRH knowledge of, and access to contraception for adolescent girls and young women is an urgent priority.

2.3.3.2. Suboptimal Contraceptive Use

Use of effective contraception is essential for the prevention of unintended pregnancies in adolescent girls and young women. In 2022 alone, effective family planning prevented more than 141 million unintended pregnancies, 29 million unsafe abortions, and almost 150,000 maternal deaths. The World Health Organization deems access to safe and voluntary family planning as a human right for its contribution to empowering women to take control of their reproductive lives and helping to reduce poverty[72].

Despite the recognized benefits of family planning, globally, it is estimated that about 160 million adolescent girls and women have an unmet need for family planning, more than half of them living in sub-Saharan Africa[72]. Overall, little progress has been made in increasing uptake of contraception, especially in LMICs.

Because of high rates of contraceptive failure and discontinuation of use among adolescent girls and young women, long-acting reversible contraception (LARC) (intra-uterine devices and implants) are most suited for AGYW and studies have shown high continuation rates with LARCs[73]. However, there is very little knowledge about LARCs among AGYW, and access is hindered by poor knowledge and socio-cultural and economic barriers. A study across 25 African countries found the contraceptive prevalence rate among adolescents to be 25.4%, with the lowest (4%) in Chad and the highest (60.5%) in Namibia. In this study, factors found to be associated with non-contraceptive use were no formal education, being married, and being married with no

children[74]. A study in Ghana also found that being married, as well as rural residence were negatively associated with contraceptive use[75].

2.3.3.3 HIV and Other Sexually Transmitted Infections

HIV in adolescent and young adults is a significant public health concern as they are currently the group most severely impacted by the disease. They make up a growing share of people living with HIV (PLHIV) and are comprised of perinatally infected and horizontally infected persons. In 2023, 1.5 million of the 39.9 million PLHIV were adolescents aged 10-19 years while 2.3 million were youth aged 15-24 years [19]. AYLHIV therefore make up less than 10% of the global population of PLHIV. However, they are disproportionately represented in new infections and deaths. Young people aged between 15 and 24 years accounted for 28.5% of all new HIV infections in 2023. A substantial amount of these new infections is in adolescent girls and young women and about 90% of these ALHIV live in sub-Saharan Africa[76]. Globally, adolescent girls and young women accounted for more than 63% of all new infections in 2021. Reducing new infections in adolescents and young people especially AGYW is key to achieving the goal of ending the epidemic by 2030 and innovative strategies for HIV testing, retention in care and maintaining mental and social wellbeing of these young persons are essential for success[77, 78].

Sexually transmitted infections (STIs), previously known as sexually transmitted diseases (STDs) and venereal diseases (VDs) are infections passed from one person to another through sexual contact, including oral, genital or anal sex. Some STIs can also be transmitted through transmission of infected blood and blood products and during

pregnancy, child birth and breastfeeding. These infections are caused by various types of pathogenic organisms such as bacteria, viruses and parasites. Many of them cause little or no symptoms and can go undetected for years. However, symptoms when they do occur, include genital discharge, pain on urination, lower abdominal pain and genital sores and warts[79]. Untreated or poorly treated STIs can cause serious complications such as cardiovascular and neurologic disease, ectopic pregnancy, infertility and increased risk of acquisition of HIV.

The most common STIs are chlamydia, gonorrhea, trichomonas and syphilis. These are caused by bacteria and parasites and are curable. However, viral STIs like HIV, genital herpes simplex virus (HSV), and hepatitis B virus (HPV) have no or limited treatment options, and HBV and HPV are aetiologic agents of hepatocellular and cervical cancer respectively. While there are safe and effective vaccines against HBV and HPV, the search for vaccines for HIV and HSV remain on-going and once acquired, these are life-long infections[79].

STIs are a significant health concern among adolescents and young adults, as they represent a significant proportion of the more than one million curable STIs acquired daily. Rates of sexually transmitted infections (STIs) also show the highest prevalence among youth aged 20–24 year, followed by 15–19-year-olds; again, often with adolescent girls bearing the higher burden. Biologically, the immature reproductive and immune systems of adolescent girls translate to increased susceptibility to STIs and HIV transmission. In addition to biological vulnerability, cultural and socioeconomic factors—particularly social inequality and exclusion, as well as having older partners—increase the susceptibility of adolescent girls to acquisition of STIs[80].

A trend analysis in STIs among adolescents and young people from 1990 to 2019, based on the Global Burden of Disease 2019, showed that while the incidence of HIV decreased from 34.5 to 22.7 per 100,000 population during this period, the incidence of other STIs increased from 6986.3 to 7088.7 per 100,000 population. The study also showed that sub-Saharan Africa had the highest incidence and disability adjusted life years (DALYs) from STIs[81].

The WHO policy guideline on STIs recommends promoting prevention through ensuring appropriate vaccination (for HPV and HBV), provision of comprehensive sexuality education to young people, delaying sexual debut, ensuring safer sex through consistent condom use, and improved access to health facilities for the diagnosis and prompt and effective treatment of STIs to prevent transmission[79].

2.3.3.4 Gender-Based Violence and Intimate Partner Violence

Gender-based violence (GBV) is a significant well-recognized threat to public health and human rights globally[82]. The United Nations defines GBV, or violence against women (VAW), broadly to include any act that results in or is likely to result in physical, sexual, or psychological harm or suffering, whether occurring in public or private life[83]. Global GBV research, prevention, and intervention efforts focus heavily on physical and sexual intimate partner violence (IPV) and sexual assault, given their prevalence and demonstrated negative health implications, which include injury, sexually transmitted infections, unintended pregnancy, addiction, and mental health issues, in addition to homicide.

According to the United Nations Population Fund (UNFPA), the experience of gender-based violence is more prevalent among females; about one-third of women have experienced violence at the hands of a partner or family member, nearly 40% of women homicide victims die at the hands of their partners, 90% of rape victims are women, over 90% of youth victims know their attackers, and over 90% of offenders never see justice. To add to this unfortunate set of data, in some cultures like in Bhutan and Ethiopia, many women feel that violence against wives is justified in some cases[84].

Adolescents are uniquely impacted by GBV, as their young age and relative inexperience with relationships can heighten their risk for physical and sexual IPV. A study from the United Kingdom found that 29% and 41% of male and female AYAs respectively had experienced IPV, the commonest form being emotional, followed by physical and sexual. Factors positively associated with IPV among the AYAs were drug use, risky sexual behavior, and history of mental issues like anxiety and self-harm[85]. Other studies show prevalent physical and sexual IPV and forced sexual debut among adolescent and young adult women in LMICs, with significant variations across regions. Adolescent women are more negatively impacted by IPV relative to their adult counterparts, and their elevated burden affirms the relevance of including adolescents and young adult women within target populations for GBV prevention, intervention, and support services in many LMICs[82].

The impact of IPV and sexual abuse on AYAs include subsequent health concerns, like substance abuse, economic insufficiency and academic underachievement, and mental health disorders like depression and suicidal ideation. Abuse of young women can also set them on a on a trajectory for subsequent abuse[86]. The social and economic cost of

intimate partner violence and abuse to the individual, the family and society is therefore, quite huge. As such, strategies to prevent or minimize IPV must be developed and deployed in order to prevent the individual harm and cost to society of IPV. Education and gender transformative interventions are at the bedrock of tackling IPV[86].

2.3.3.5 Menstrual Health

Menstruation is a naturally occurring physiological phenomenon in adolescent girls and pre-menopausal women, signifying capacity for reproduction. However, lack of information on menstruation and inability to have open discussions on menstruation because of cultural taboos can engender poor personal cleanliness and inadequate sanitary conditions which predispose girls and young women to the risk of reproductive tract and even blood stream infections[87]. Menstrual hygiene management (MHM) has therefore been defined as 'women and adolescent girls using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access *to* facilities to dispose of used menstrual management materials[88].

Material resources to absorb or collect menstrual blood, facility for hygienic disposal of menstrual material, as well as availability of water, soap, and assurance of a bath area with adequate privacy are essential for good menstrual hygiene management. Women and girls in low-income settings have low awareness of hygienic practices and lack culturally appropriate materials for menstrual hygiene management practices. Menstruation and associated activities are surrounded by silence, shame and social taboos

that are further manifested in social practices that restrict mobility, freedom and access to normal activities. For instance, interacting with people or refraining from performing religious rituals are restrictions found in many cultures[89].

Poor menstrual hygiene can lead to urinary and reproductive tract infections and be responsible for social withdrawal especially among younger adolescent girls. Menstrual hygiene needs are not only specific and pressing to women and girls in reproductive age but also require access to some management of the menstrual period, a basic reproductive health right. Menstrual hygiene management is often overlooked in the provision of SRH services leaving girls with poor knowledge and resources to hygienically manage this important cyclical event. Menstruation education must be included in a package of comprehensive sexual and reproductive health services. Women and girls may need to be supported to access Hygienic menstrual materials, and cultural hindrances to good menstrual hygiene practice should be addressed to ensure the menstrual health and wellbeing of menstruating girls and women.

2.4 Adolescent Boys and Young Men

Adolescent boys and young men (ABYM) are male individuals aged 10-24 years. This demographic segment is usually neglected in sexual and reproductive health research. Most often this is because the consequences of unsafe sex and other poor SRH choices are more easily visible in females, as they are the ones that get pregnant and suffer the consequences of unsafe abortion and other pregnancy-related morbidities, and increased maternal and infant mortality, as well as the negative social and economic consequences of early and unwanted pregnancies [90].

Most often male adolescents and young adults are majorly involved in studies with condom use and STI knowledge and prevention. However other aspects of SRH such as knowledge of reproductive biology, intimate partner violence with the male as a victim, and even relationship vulnerabilities of the male and marriage and fertility intentions of HIV positive adolescent and young adult males are under researched. It is imperative to include male adolescents and young adults in sexual reproductive health research, education and service provision for their own wellbeing as well as those of women and the society at large.

2.5 Adolescent and Youth Friendly Services (AYFS)

The WHO defines an adolescent-friendly health service as one that is accessible, acceptable, equitable, appropriate, and effective [91]. The Federal Ministry of Health in Nigeria, in collaboration with the United Nations Population Fund, produced a policy document in 2018 titled, "Nigeria National Standards & Minimum Service Package for Adolescent &Youth-Friendly Health Services", which set national standards and implementation plans to provide address the five leading health challenges of AYAs in Nigeria[92]. Sexual and reproductive health issues are at the top of these five identified health issues of AYA. Among the standards for achieving optimal health services for AYAs is making available a safe and conducive place to provide AYFHS in facility, ensuring young people are aware of the services, ensuring convenience of timing and youth friendliness of services, trained staff and appropriate equipment and supplies, among others.

However, access of young people to these services is affected by many factors, including ethnicity, financial challenges, clinic hours, transportation, attitudes and behaviors of health professionals, and, most importantly, lack of privacy and confidentiality. A recent systematic review of adolescent friendly services showed that significant concerns for young people were anonymity and confidentiality[93]. One of the limitations of AYFS is that they were birthed for the provision of HIV-related services, especially prevention services to adolescents and young people. Many of them as presently structured are not equipped to provide comprehensive SRH services to young persons. These shortcomings need to be addressed by ensuring appropriate adolescent friendly services requires training of healthcare workers on adolescent issues, including adolescent sexual and reproductive health ASRH), and enabling them to develop skills on communicating with adolescents. They must be free of any cultural biases or discriminatory tendencies with regards to ASRH and HIV. These services must also be made accessible in terms of location and timing of services, as well as financial affordability.

2.6 Theoretical Framework for the Study

This research project utilized the Social Ecological Model (SEM) framework. Health and health attitudes and behavior are multifactorial concepts, influenced by several attributes of an individual and the environment in which they live. The Social Ecological Model of health, first introduced in the 1947 Constitution of the World Health Organization, can be applied to the physical, mental and social wellbeing of persons. It recognizes that the health of an individual is affected by interactions between them, their community, and their physical, social and political environment[94].

The different levels of influence in the SEM framework are the individual (self) factors such as age, sex, income, attitudes and beliefs; inter-personal and relationship factors such as family, partner, peers and social networks; organizational such as schools and work places religious organizations; community factors such as physical and social environment, belief systems that shape norms and behaviours, and policies, laws and regulations that guide behavior[95]. All these levels directly or indirectly influence individual knowledge acquisition, attitude and behaviour, and even access to healthcare services. Knowledge on any topic, including sexual and reproductive health, is influenced by individual aptitude and exposure to learning opportunities in the home, including parental communication on issues, from friends and peers, the school and other informal channels like the media. Societal norms dictate what is allowed behavior, and what is taboo. Government policies and influence affect the provision of accessible and affordable schooling and what can be taught in formal settings as well as the availability and accessibility of healthcare personnel and services. All these influence and impact personal beliefs, perception, and attitudes and ultimately shapes behavior and determine health promotion and prevention activities and timely seeking of healthcare if needed.

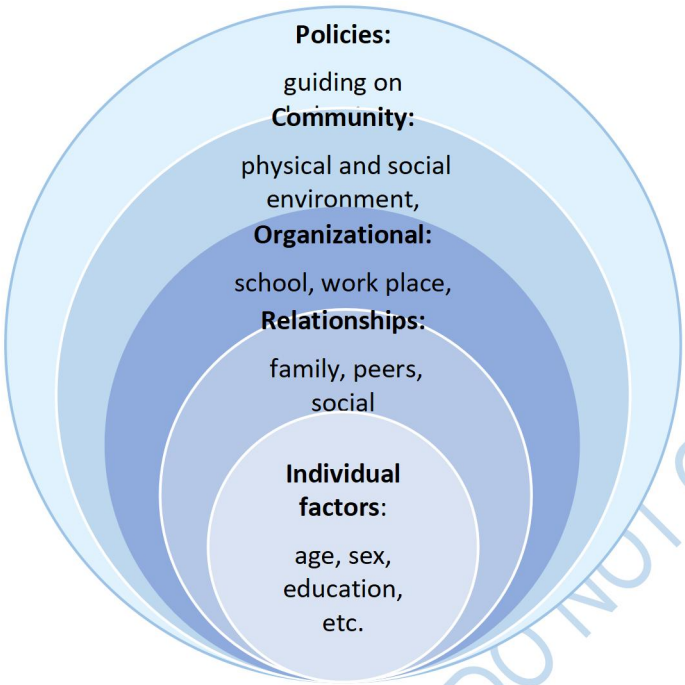

Figure 2.1: The Social Ecological Model (Courtesy: Safe States Alliance)

The Social Ecological Model framework has been applied in diverse areas of health research and service such as HIV, adolescent health and physical activity among women. It is now well understood that social and structural factors as highlighted above play a critical role in the wellbeing and vulnerabilities of persons living with HIV[96].

The sexual and reproductive health of adolescents and young adults living with HIV comprises knowledge of different aspects of SRH like sexual maturation, contraception, pregnancy and sexually transmitted infections, as well as attitude to these aspects of SRH, and behavior such as sexual practices, contraceptive use, and access to, and utilization of appropriate SRH services. The different levels of the SEM framework can be applied to these different aspects of SRH in AYA to facilitate

understanding and help to proffer strategies to ensure their optimal health in this essential aspect of life and health.

The Social Ecological Model framework has been applied in diverse areas of health research and service such as HIV, adolescent health, and physical activity among women[96, 97].

This Social Ecological Model (SEM) framework will be used for the study. It is now well understood that social and structural factors play a critical role in the vulnerabilities of persons living with HIV[96]. The SEM postulates that in making decisions, an individual will consider more deeply the interests and views of one's family, peers, and community alongside her/his own preferences. Therefore, the model demonstrates that changing behavior requires a critical look at the different levels of an individual's influence. The SEM framework will thus facilitate the understanding of the individual, relationship, organizational political and economic factors that determine the knowledge, behaviour and access to services among AYLHIV with regards to sexual and reproductive health.

The framework was first advanced in the 1947 constitution of the World Health Organization, and can be applied to the physical, mental and social wellbeing of persons. It recognizes that individuals are embedded within larger social systems and describes the interactive and reinforcing characteristics of individuals and their environments that underlie people's behaviors. The different levels of influence in the SEM framework are the individual (self) factors such as age, sex, income, attitudes and beliefs; inter-personal and relationship factors such as family, partner, peers and

social networks; the community/institutional factors such as services, schools, religious organizations, workplace environment, and the societal factors which include cultural norms, government policies etc. All these levels directly or indirectly influence individual behaviour, attitude and even access to healthcare services. They must therefore be taken into consideration in the assessment of health needs and allocation of scarce resources to provide services. The Social Ecological Model framework has been applied in diverse areas of health research and service such as HIV, adolescent health and physical activity among wome[96, 97].

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Chapter Three

3.0 Materials and Methods

3.1 Research Design

The study utilized a cross-sectional quantitative design.

3.2 Study Area

3.2.1 Study State

The study was conducted in Lagos state, the commercial hub and former administrative capital of Nigeria. It is located in the southwestern geopolitical zone of the country at latitude 6°5227′N and longitude 3°6218′E.It is the smallest state in the country with a total surface area of 3,577 km^2, about a quarter of which is covered by water[1]. Lagos is bounded in the north and east by Ogun state, in the west by the Republic of Benin, and in the south by the Bight of Benin of the Atlantic Ocean. Although originally home to the Awori, Yoruba and Egun ethnic groups, its commercial and cosmopolitan nature has attracted persons from all over the country, neighbouring African countries, and other expatriates to live and do business in Lagos.

Lagos had an estimated population of 15.4 million people in 2022 making it the largest city in Africa[2]. With a national adolescent and young adult proportion of the population of about 33% in 2022, and a state HIV prevalence of 1.3%,Lagos state has a significant burden of adolescents and young adults living with HIV [3, 4]. The state, therefore has a number of facilities offering HIV care and treatment services to adolescents and young adults.

Lagos State is made up of 20 Local Government Areas (LGAs), 16 of which are in the metropolitan part of the state and four of which are semi-urban, and 37 Local

Council Development Areas (LCDAs). The four study centres are located in the Lagos Metropolitan Area, whereabout 85% of Lagos residents live.

3.2.2 Study Sites:

The study sites comprised of the four largest adolescent and youth HIV care and treatment facilities in the Lagos Metropolitan Area of the state and are listed below.

1. The Nigerian Institute of Medical Research (NIMR), Yaba, Mainland LGA
2. The Lagos University Teaching Hospital (LUTH), Idi-Araba, Surulere LGA
3. The Lagos State University Teaching Hospital (LASUTH), Ikeja, Ikeja LGA, and
4. The Massey Street Children Hospital (MSCH), Lagos Island, Lagos Island LGA

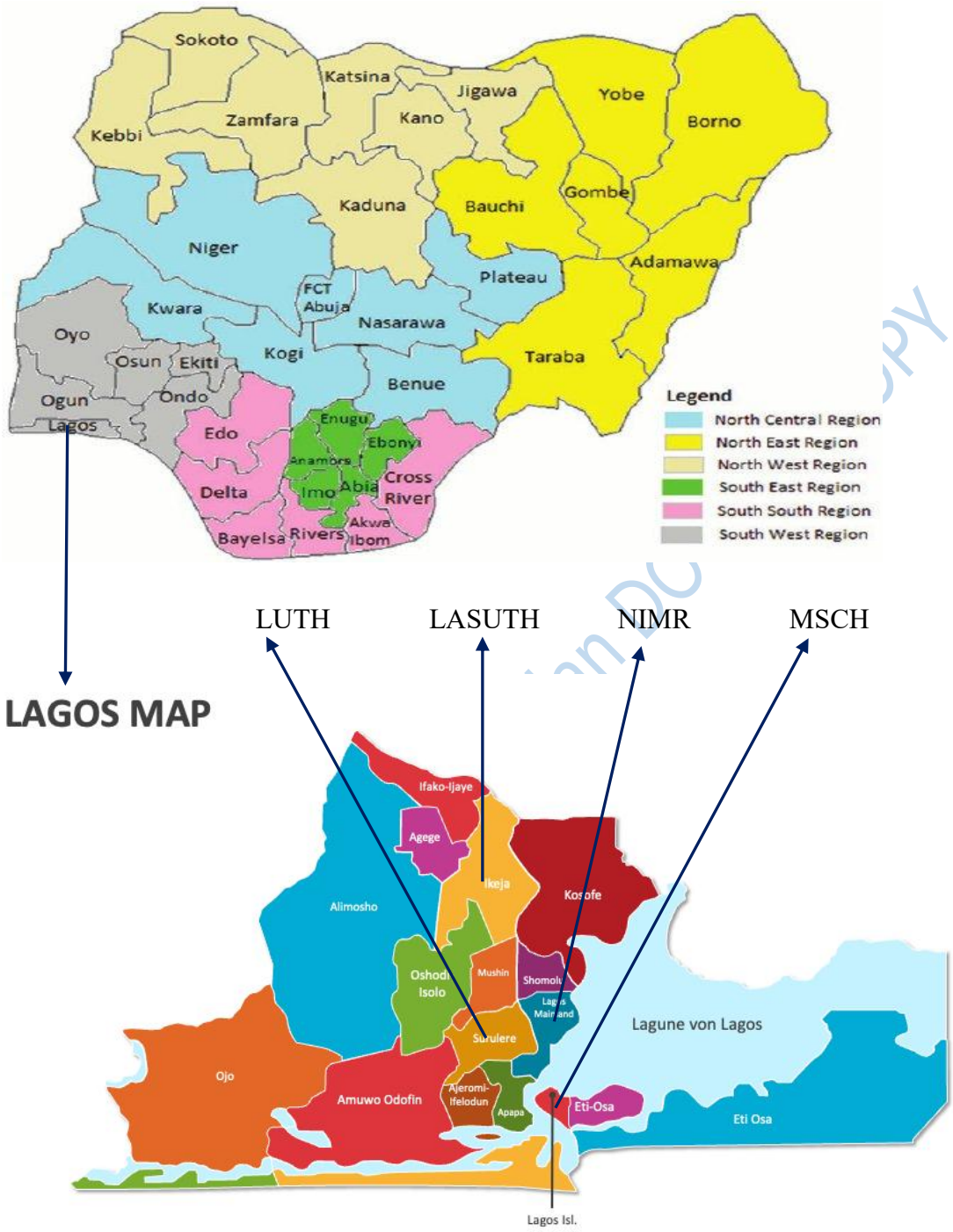

Figure 3.1: Map of Nigeria and Metropolitan Lagos (with study sites highlighted)

Nigerian Institute of Medical Research (NIMR)

The Nigerian Institute of Medical Research (NIMR), in Yaba LCDA of Mainland LGA is the oldest medical research institution in the country, having been established in 1920 as the headquarters and laboratory of the West African Yellow Fever Commission of the Rockefeller Foundation [5]. The Institute has been variously named as the West African Council of Health, the Nigerian Council of Health (at Independence in 1960), and the National Institute of Medical Research through the enabling Act of 1977 under the Ministry of Science and Technology. The current name, the Nigerian Institute of Medical Research, was given when the Institute was moved to the Ministry of Health in 1993[6]. The mandate of the Institute, under its enabling Act, is to conduct research into health problems of Public Health importance in the country, in collaboration with universities and allied institutions, within and outside Nigeria, and disseminate results to contribute to national development.

The Institute has five Research Departments, namely Biochemistry and Nutrition, Clinical Sciences, Microbiology, Molecular Biology and Biotechnology, and Public Health and Epidemiology, and several support Departments and Units.The HIV Programme of the Institute is domiciled in the Clinical Sciences Department with the Microbiology Department, which has National Reference Laboratoriesfor HIV and Tuberculosis, providing laboratory services for the programme.

The HIV Programme in the NIMR was commenced in 2002 with the inclusion of the Institute as part of the 25 pilot sites for the provision of HIV care and treatment services to Nigerians in response to the escalating epidemic. It provides comprehensive HIV care and treatment services including diagnostics, treatment,

monitoring, and preventive services to adults, children, adolescents, and pregnant women. The programme has grown to become one of the largest in the country with a cumulative enrolment of over 25,000 as at December 2024. NIMR commenced Adolescent and Youth Friendly Clinic (AYFC) in 2012 to provide more focused services to the AYLHIV. There were about 350 AYLHIV receiving care at the clinic at the end of 2022. The Clinic holds on the second Saturday of every month, and doctors, nurses, pharmacists, counsellors, data entry officers, and laboratory personnel provide comprehensive HIV services.

Lagos University Teaching Hospital (LUTH)

The Lagos University Teaching Hospital was established in 1961 as an affiliate of the College of Medicine, University of Lagos, with a three-fold mandate of healthcare, training and research. It is located in Idi-Araba, Surulere LGA and is the largest teaching hospital in Nigeria with a 950-bed capacity,46 clinical departments and 18 non-clinical departments [7]. HIV services started in LUTH in 2002 as it was also one of the Federal Government's 25 pilot sites for the provision of HIV services. Adolescent HIV services commenced in LUTH in 2014 and was providing services to about 259 adolescents and young adults living with HIV by end of 2022. There is no adolescent and youth support group meeting in LUTH but youth friendly clinic services are provided during regular clinic hours to AYLHIV.

Lagos State University Teaching Hospital (LASUTH)

The Lagos State University Teaching Hospital (LASUTH), situated at Ikeja, was established in 1955 as a cottage hospital. It transformed into the Ikeja General Hospital in 1972, before becoming the Teaching Hospital of the Lagos State

University College of Medicine (LASUCOM) in 2001[8]. It commenced general HIV services in 2002 and adolescent and youth friendly HIV services in 2010. About 195 adolescents and young adults were accessing services at the Adolescent and Youth friendly HIV Centre of the hospital at end of 2022. The youth-friendly clinic runs on Tuesdays and Thursdays is manned by different cadres of healthcare providers.

Massey Street Children Hospital (MSCH)

The Massey Street Children Hospital (MSCH), is the oldest children's hospitals in West Africa. It was established as a general outpatient clinic in 1914, became the first Maternity Hospital in Lagos in 1926, before transforming into a Children's Hospital in 1961[9]. It is located in Isale Eko, the heart of Lagos Island LGA and is operated by the Lagos State Government. It started paediatric HIV services in 2006 and currently provides HIV care and treatment services to about 245adolescents and young adults. The Youth friendly clinic holds on the last Tuesday of every month during regular clinic hours. Service is provided by doctors, nurses/counsellors, pharmacists, and laboratory personnel.

These four centres have the oldest and largest organized HIV services in Lagos state and together provide comprehensive HIV care and treatment services to about 1,000 adolescents and young adults (ages 10 to 24 years). These services encompass full clinical (clinical evaluation, treatment, and counselling), laboratory assessment (HIV testing [HTS], HIV DNA and RNA PCR, CD4 T-cell count, haematological and clinical chemistry evaluation), and care and support services. The laboratories in

NIMR and LUTH also serve as National Reference Laboratories for HIV in the country and have capacity for HIV resistance studies.

Patients from all over Lagos state and adjoining parts of the neighbouring Ogun State come to these study centres to access HIV care and treatment services. Since Lagos is home to people from all parts of Nigeria, study participants in these centres are, to some extent, a true reflection of adolescents and young adults living with HIV in Lagos state in particular, and Nigeria in general.

3.3 Study Population

The study population consisted of male and female HIV-positive adolescents and young adults, aged 14 years to 24 years, accessing HIV care and treatment services at the four study centres. The developing cognitive abilities of adolescents aged 10-13 years may impair their comprehension of, and response to SRH questions, and their continuing dependence on parents/caregivers, whose cultural inhibitions regarding sexuality issues may hinder the giving of informed consent for young adolescent participation in SRH research, negatively affect the inclusion of young adolescents in SRH research. The Consensus Report on Guidelines for Young Persons' Participation in Research and Accessing Sexual and Reproductive Health Services in Nigeria therefore recommends that adolescents aged 14 years and above can give informed consent for non-interventional sexual and reproductive health studies in Nigeria, while younger adolescents need parental consent for all forms of sexual and reproductive health studies[10].

3.3.1 Inclusion Criteria

1. Male and female in-school and out-of-school adolescents and young adults living with HIV (AYLHIV) aged 14 to 24 years and accessing treatment and care at any of the study facilities.
2. AYLHIV'sknowledgeof their HIV-positive status
3. Ability and willingnessto provide informedconsent to participate in the study.

3.3.2 Exclusion Criteria

1. AYLHIV aged less than 14 years
2. AYLHIV who are unaware of their HIV-positive status
3. AYLHIV with cognitive deficits that could interfere with understanding and complying with study procedures
4. AYLHIV with advanced HIV disease (AHD) who are too ill to participate
5. Adolescents and young adults living with HIV who do not consent participate in the study

3.4 Sample and Sampling Techniques

3.4.1 Sample Size Determination

Lagos state has the 4th highest HIV burden in the country an estimated 160,000 people living with HIV (PLHIV) in Lagos in 2022[11]. Adolescents and young adults (10-24 years) constitute about 32% of the Nigerian population[12]. Thus. there is an extrapolated population of more than 50,000 AYLHIV in Lagos State.

The Raosoft sample size calculator (Raosoft Inc., Seattle, USA) was used to calculate the minimum sample size for the study[13]. The formula is shown below.

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left[\frac{z^2 \times p(1-p)}{e^2 N}\right]} = 377$$

where N = population size (>20,000)

e = margin of error (0.05)

z = z-score at 95% level of confidence (1.96)

p = response rate (0.5)

To account for incompletely filled questionnaires because of the sensitive nature of the subject, 15% (57) was added to the calculated minimum sample size of 377 to yield the study sample size of 434. Four hundred and forty-three respondents participated in the study.

3.4.2 Sampling Technique

A multistage sampling technique was adopted for the study.

1. Purposive sampling was used to select the oldest and largest adolescent and youth HIV care and treatment facilities in Lagos state, viz, NIMR, LUTH, LASUTH, and MSCH.
2. Simple random sampling technique was then used to select the required number of respondents from each of the four sites.

Study participants recruited from each site were proportionate to the population of AYLHIV aged 14-24 years at each facility. The number and proportion of the 1,052

AYLHIV in the different study sites, and the expected number of participants per site are detailed in table 3.1 below.

Table 3.1: Expected number of participants per study site

Study Site	AYLHIV (14-24 years) n (%)	Expected number of participants
NIMR	350 (33.3)	144
LUTH	259 (24.6)	107
LASUTH	195 (18.5)	80
MSCH	248 (23.6)	102

The RAND function in Microsoft Excel®[14] was used to generate a random list of expected respondents from each participating site's log of patients in the study age group. The generated list was used to recruit respondents from the weekly clinics and monthly peer support meetings in the facilities. Some selected respondents were reached out to by phone call to come to their facility for the study and transportation support was provided for the study visit.

3.5 Research Instrument for Data Collection

The semi-structured questionnaire used for the study was adapted from the validated WHO Illustrative Questionnaire for Interview-Surveys with Young People[15]. It had sections on baseline characteristics, knowledge of sexual and reproductive health, attitude of respondents to SRH, and SRH experience of respondents. Two additional sections were incorporated into the questionnaire to obtain data on HIV-related characteristics and menstruation experience of female respondents.

The adapted study questionnaire had 6 sections as follows:

- ***Section 1: Baseline Characteristics*** (31 items):
    a. Sociodemographic characteristics
    b. Social habits
    c. Communication with parents/caregivers
- ***Section 2: HIV and ART History*** (7 items)
    a. Age at HIV diagnosis and mode of transmission,
    b. Antiretroviral therapy (ART)history
    c. HIV disclosure issues
- ***Section 3: Knowledge of Sexual and Reproductive Health*** (43 items)
    a. Knowledge of puberty, menstruation, pregnancy and contraception, and HIV and other sexually transmitted infections
    b. Comprehensive sexuality education
- ***Section 4: Attitude to Sexuality and Gender Norms*** (15 items):
    a. Appropriate SRH conduct before marriage
    b. Gender-related matters
    c. Contraception, and high-risk sexual behaviour
- ***Section 5: SRH Experience*** (65 items):
    a. Romantic relationship experience
    b. Sexual experience:
    c. Contraceptive experience

d. Sexually transmitted infection (STI) experience

e. IPV experience

f. Sexual abuse and high-risk sexual behavior experience

g. Pregnancy and Abortion experience

- ***Section 6: Menstruation Experience*** [females only] (19 items):

  a. Menstruation experience (age at menarche, duration of menstrual period, duration and regularity of menstrual cycle and experience of dysmenorrhea and limitation of activities during the period, and knowledge of dates of last menstrual period and expected date of next period).

  b. Menstrual hygiene practice (material used for menstrual flow, frequency of menstrual material change, disposal of menstrual material, and frequency of births during the period).

b. Section 7: Perception of Youth Friendly Clinics by Respondents (17 items)

a. Actual and preferred timing of clinic and convenience for respondents

b. Availability of SRH posters/brochures at the facility

c. Group sessions on SRH topics

d. Specific SRH information/services sought and received

e. Confidentiality during these sessions

f. Perceived attitude of staff

The adapted study instrument was pretested among 30 adolescents and young adults with HIV aged 14-20 years receiving care at the Harvey Road General Hospital, Yaba, which was not a site for the study.

3.6 Validity of Research Instrument

The research questionnaire was adapted from the WHO illustrative questionnaire for interviews-surveys with young people, which has been validated in Nigeria and used in previous studies. The questions were adapted to suit our local context and the study focus; thus, a section was included to obtain HIV related data and Menstrual hygiene practice questions were obtained from relevant literature and incorporated into the questionnaire. The content validity of the instrument was ensured by rigorous review by my supervisors and other experts in the field of adolescent and youth HIV and sexual and reproductive health. This review helped to clarify ambiguous questions and remove unnecessary ones.

3.7 Reliability of the Research Instrument

The study instrument was pretested among 30 AYLHIV receiving care from Harvey Road General Hospital, Yaba, which was not a study site, to check the consistency and clarity of the items in the questionnaire. This pre-testing yielded a Cronbach's alpha score of 7.2.

3.8 Data Collection

3.8.1 Advocacy Visits

Advocacy visits were paid to the management of each study visit to explain the study objectives, procedures and expected outcome and seek their approval for their patients to be included in the study. After approval was obtained from the management of the facilities, the coordinators of the Paediatric/Adolescent and Young Adult HIV Programme in the facilities were also brought in to elicit their support for the study, which they all willingly provided.

3.8.2 Training of Research Assistants

A one-day training was conducted for four research assistants, one for each study site to help with data collection at these sites. The training incorporated the objectives of the study, the processes, and expected outcome, as well as a detailed review of the data collection instrument. At the end of the training, each research assistant completed the questionnaire. These completed questionnaires were reviewed by me to ensure appropriate understanding of the instrument by the research assistants, so they could guide the research respondents as needed.

3.8.3 Study Procedure

The research assistants attended the peer-support meetings of the study facilities to recruit selected respondents who were present at these gatherings. We also visited the facilities on Adolescent and Young Adult clinic days to interview any selected participant who was present. Because of time constraints, selected participants who were not strictly adherent to care visits were called on phone, the study purpose and procedures of study explained briefly, and they were encouraged to come to the facility to fill the questionnaire at their earliest convenience, and they were compensated for their time and transportation.

After a detailed informed consent process and the signing of the consent form, the respondents were given the questionnaire to fill. The questionnaire was self-administered but interviewer-guided as research assistants were on hand to provide clarifications as necessary. Each respondent filled the questionnaire in a quiet consulting room or space allocated for the purpose by the site staff. The assistants retrieved the questionnaires at completion by the respondents, looked through and assured that omitted questions were

deliberately omitted by the respondent. If the omission was in error, the respondent was given time to more fully complete the questionnaire. For the purposes of confidentiality, personal identifiers like name, hospital number or home address were not collected from respondents; only the study ID, which comprised of study site and study number, was used to identify respondents.

3.9 Data Analysis

Data collected with the questionnaire were entered into an Excel® spreadsheet, cleaned and then exported to IBM SPSS (version 27) for analysis. The knowledge questions for each of the four aspects of SRH assessed in this study, viz, puberty, menstruation, pregnancy and contraception and HIV and other sexually transmitted infections were scored, with 1 for a correct response and 0 for an incorrect or missing response. The mean score for each SRH aspect was obtained for each respondent and the overall SRH knowledge score was the weighted mean score of all the different aspects. A score of ≥ 0.60 was regarded as good knowledge while a score of <0.6 was regarded as poor knowledge[16, 17].

The attitude of study respondents to sexual and reproductive health was assessed with a 3-point Likert scale ('agree', 'don't know/not sure', and 'disagree') in four areas, namely: appropriate sexual behavior before marriage (5 items), gender issues (4 items), condom use (3 items), and high-risk sexual behavior (2 items). This yielded a total of 14 questions. A positive response got a score of +2, a 'don't know/not sure' response got a score of 0, while a negative response got a score of -2. The maximum score per respondent was thus 28. The total score of a respondent was divided by 28 and

multiplied by 100 to get the percentage score. The weighted mean score of respondents was taken as the cut-off point, i.e., a score below the mean was taken as a negative attitude while a score at or above the mean was taken as a positive attitude[18].

The menstrual hygiene practice of female AYLHIV was obtained using four items and scored as in the table below. The total score was four. A respondent's total score was divided by 4 and then multiplied by 100 to get her MHP percentage score. A score of ≥ 75% was regarded as a good menstrual hygiene score while <75% was regarded as poor menstrual hygiene score[19].

Table 3.2: Menstrual Hygiene Practice Scoring Table

Item	Hygienic (score =1)	Unhygienic (score =0)
Menstrual material	Sanitary pad	Tissue paper
	Tampon	Cloth
	Menstrual cup	Cotton wool
Frequency of change of menstrual material per day	≥ 3	< 3
Disposal of menstrual material	Wrapped and put in dustbin	Toilet (water closet)
	Burnt	Bush
Baths/day during period	More than other days	Less than or same as other days

Other study outcomes are as follows.

- Sexual and reproductive health experience:

a. romantic relationships
b. sexual experience: age at coitarche, sexual violence, high-risk sexual activities (one-night stands and transactional sex)
c. Contraceptive use
d. Experience of sexually transmitted infections
e. Pregnancy and abortion experience

- Intimate partner violence and correlates
- Menstruation experience (menarche, menstrual frequency and duration and experience with dysmenorrhea.

All study outcomes were assessed with means and standard deviations for continuous and frequencies and proportions for discrete variables. Binary and multivariate logistic regressions were used for tests of association, and the level of significance was set at $p< 0.05$. Study results are presented as tables and charts.

3.10 Ethical Considerations

Ethical Clearance for the study was obtained from the Lead City University Health Research Ethics Committee (HREC) [LCU-REC/22/180], the Institutional Review Board (IRB) of the Nigerian Institute of Medical Research [IRB/22/061], the Lagos University Teaching Hospital HREC [ADM/DSCST/APP/5509], the Lagos State University Teaching Hospital HREC [LREC/06/10/2015], and the Lagos State Health Service Commission (LSHSC) [LSHSC/2222/VOL. V/01].

All prospective respondents were taken through a comprehensive informed consent process. The consent document with information on the nature and purpose of the study, the processes, risks and benefits, privacy and confidentiality, voluntariness of participation, and freedom to skip any question they were not comfortable with or did not want to answer, was given to the prospective respondent to read, or had it read to them by the research assistant. There was assurance that unwillingness to participate would not attract any negative consequences or in any way affect the care and treatment they received at the health facility. Time was given for the prospective respondent to ask questions and seek clarifications. There was no coercion or inducement, and only the handful of respondents who were reached out to by phone and agreed to come on a non-clinic or peer support group meeting day were compensated with a stipend for transportation. At the end of the informed process, a consenting AYLHIV signed two copies of the consent form, one of which they took home with them.

Study data were entered into and analyzed on passworded computers with access limited to only authorized study personnel.

Endnotes

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Chapter Four

4.0 RESULT

4.1 Baseline Characteristics of Respondents

4.1.1 Respondents from Different Study Sites

Four hundred and forty-three adolescents and young adults with HIV from four HIV care and treatment centres in Lagos, comprising 170 (38.3%) from the Nigerian Institute of Medical Research (NIMR), Yaba, Mainland LGA, 127 (28.7%) from the Lagos University Teaching Hospital (LUTH), Idi-Araba, Surulere LGA, 93 (21.0%) from the Massey Street Children Hospital (MSCH), Lagos Island, Lagos Island LGA, and 53 (12.0%) from the Lagos State University Teaching Hospital (LASUTH), Ikeja, Ikeja LGA, consented to participate in the study and were enrolled, as shown in Figure 4.1.

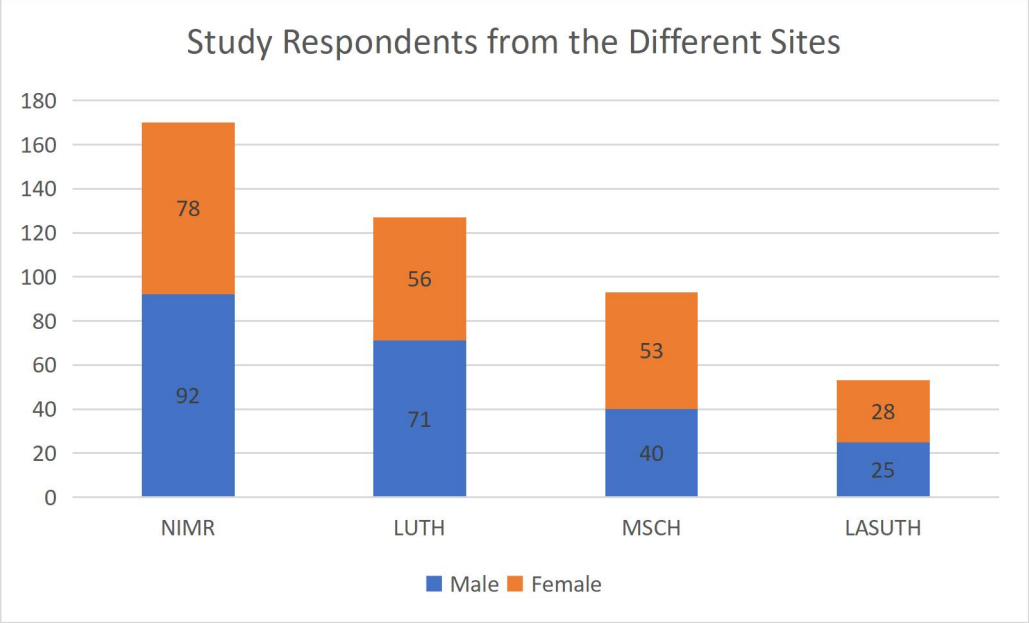

Figure 4.1: Respondents from the different study sites by sex

4.1.2 Place of Residence of Respondents

Most of the respondents (390; 88.0%) resided in Lagos state while the rest came from the neighboring Ogun state. Of those living in Lagos, majority (66, 16.9%) were from Alimosho, the largest Local Government Area (LGA) in the state. The remaining participants came from the other LGAs in Lagos as depicted in Figures 4.2 a and b.

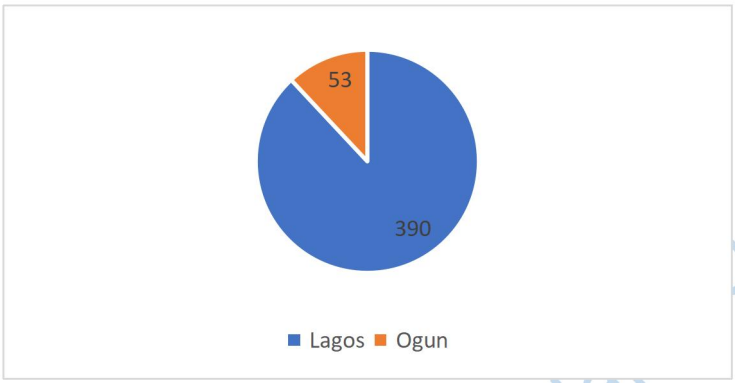

Fig.4.2a: State of Residence of Respondents

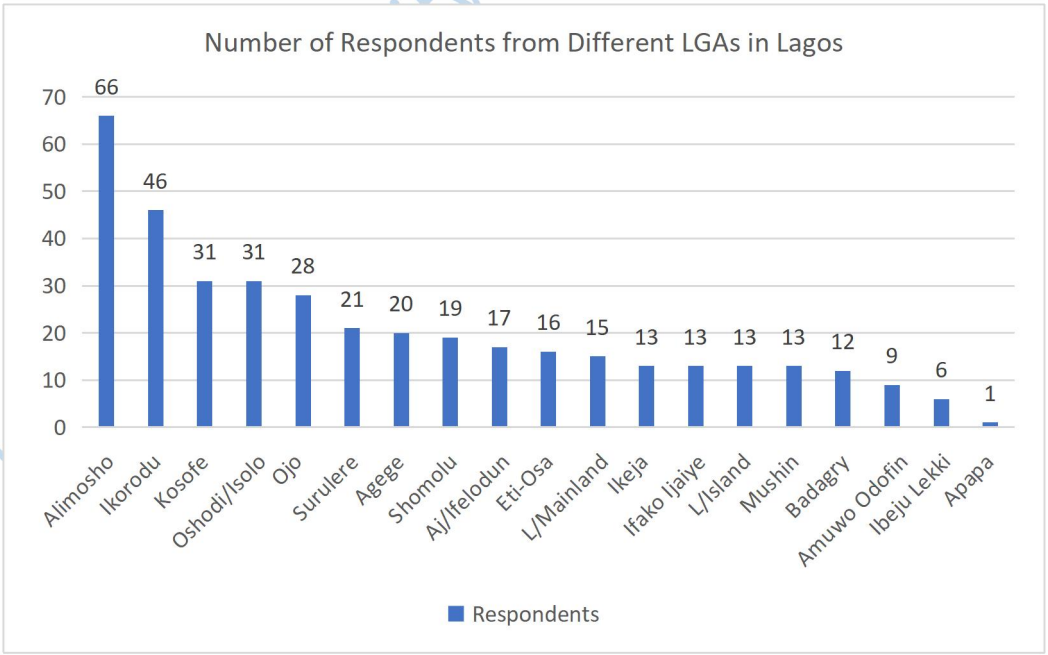

Figure 4.2b: Respondents from Different LGAs in Lagos State

4.1.3 Socio-demographic Characteristics of Respondents

The mean age of respondents was 18.5 (±2.9) years (range 14 years to 24 years), 228 (51.5%) were male, giving a male: female ration of 1.1: 1, and 294 (66.4%) were adolescents aged 14 to 19 years. The majority of respondents (270; 61.2%) were in school, of whom (162; 60.0%) were still in senior secondary school, while (108; 40.0%) were in post-secondary educational institutions. For the 171 out-of-school respondents, the mean age at leaving school was 17.8 (± 2.1) years and the highest level of formal education attained was senior secondary school in 122 (71.3%) and post-secondary education in 34 (19.9$). The reasons given for leaving school ranged from having completed education (50.3%) and financial constraints (12.3%), to wanting to learn a trade (7.6%). Other reasons included being asked to withdraw for poor performance (2.9%) and being in longer interested in school (2.3%). The majority of the out-of-school respondents (76.5%) were employed or in an apprenticeship position. There were no significant differences in age, educational status, and employment status between male and female respondents (Table 4.1).

About a third of all respondents (35.4%) had lost one or both parents; however, the primary caregiver was one or both parents for the majority (81.3%) of respondents, with no significant difference between male and female respondents. The majority of respondents (55.9%) were of higher socioeconomic status (as measured by their type of residential accommodation[1, 2]).

Christianity was the professed religion of most respondents (80.7%), and majority were from the Yoruba (46.4%) and Igbo (35.0%) ethnic groups. The professed sexual orientation of respondents was heterosexual in most cases. However, male

respondents were significantly more likely to be homosexual or bisexual compared to females (OR = 3.91 [95% CI: 1.03-21.89]; p = 0.036). This is shown in Table 4.1.

Table 4.1: Sociodemographic Characteristics of Respondents

Characteristic	Total n (%)	Males n (%)	Females n (%)	OR [95% CI]	p
Age (years) [443]**:**					
Mean (± SD)	18.5 (2.9)	18.5 (2.9)	18.6 (2.9)		
Groups: 14-19	294 (66.4)	150 (65.8)	144 (67.0)	0.95	0.792
20-24	149 (33.6)	78 (34.2)	71 (33.0)	[0.64-1.41]	
Education (441)**:**				0.86	0.436
In school	270 (61.2)	135 (59.5)	135 (63.1)	[0.59-1.26]	
Out-of-School	171 (38.8)	92 (40.5)	79 (36.9)		
Occupation (149)**:**				1.58	0.240
Employed/ Apprentice	114 (76.5)	65 (80.2)	49 (72.1)	[0.74-3.37]	
Not employed	35 (23.5)	16 (19.8)	19 (27.9)		
Parental Status (443)**:**				1.31 [0.89-1.93]	0.176
Parents Alive	286 (64.6)	154 (67.6)	132 (61.4)		
Orphaned	157 (35.4)	74 (32.4)	83 (38.6)		
Primary Caregiver (434)**:**				0.88 [0.53-1.45]	0.614
One or Both Parents	360 (82.9)	183 (82.1)	177 (83.9)		
Other	74 (17.1)	40 (17.9)	34 (16.1)		
Socioeconomic Status (432)**:**				0.97 [0.66-1.41]	0.856
Higher	247 (55.9)	126 (56.8)	121 (57.6)		
Low	185 (44.1)	96 (43.2)	89 (42.4)		
Religion (429)**:**				0.99	0.953
Christianity	346 (80.7)	178 (80.5)	168 (80.8)	[0.61-1.59]	
Islam	83 (19.3)	43 (19.5)	40 (19.2)		
Tribe (375)**:**				0.73	0.174
Yoruba	174 (46.4)	90 (46.6)	84 (46.2)	[0.46-1.15]	
Igbo	131 (35.0)	78 (40.4)	53 (29.1)		
Other	*70 (18.6)*	*25 (13.0)*	*45 (24.7)*		
Sexual Orientation (231):				3.91 [1.03-21.89]	**0.036***
Homosexual/Bisexual	16 (6.9)	13 (10.3)	3 (2.9)		
Heterosexual	215 (93.1)	113 (89.7)	102 (97.1)		

**Fisher Exact test*

4.1.4 Comprehensive Sexuality Education (CSE) of Respondents

Most study respondents (332, 74.9%) had received Comprehensive Sexuality Education (CSE), also known as Family Life and HIV Education (FLHE) in Nigeria. Majority of respondents that had received CSE were female (53.6%) and the lessons were given in Junior Secondary School (JSS) (53.3%). The major topics recalled by the participants were "reproductive biology" (240, 72.3%) and "sexual development" (218, 65.7%), while the least was "contraception" (74; 22.4%). There was no statistically significant difference between male and female respondents concerning the different CSE topics taught ($p > 0.05$). Figure 4.3 is a bar chart of the proportion of male and female participants who received the different CSE topics. The majority of participants found the classes to be informative (246; 74.1%) and recommended that they should be taught in Junior Secondary School (146; 44.1%).

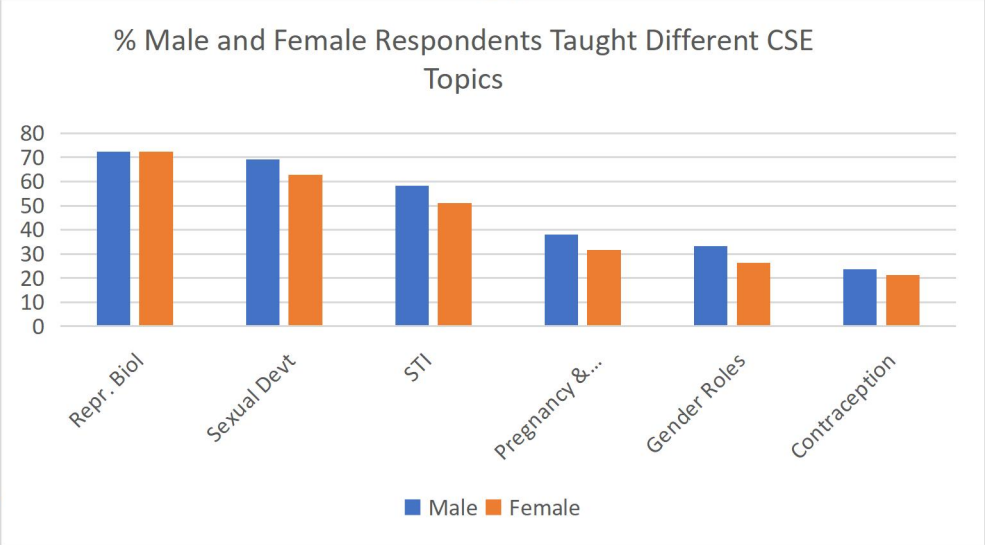

Figure 4.3: Proportion of Respondents Taught Different CSE Topics

4.1.5 HIV-Related Characteristics of Respondents

The mode of HIV acquisition was perinatal for most respondents (81.7%). Other modes of acquisition included sexual (4.3%), transfusion of blood and blood products (3.9%), and unknown (9.5%). There were no statistically significant differences in the modes of HIV acquisition between males and females (p = 0.369). The mean age at HIV diagnosis was 5.5 (± 5.8) years and the mean duration on antiretroviral therapy (ART) was 12.2 (± 5.1) years. Of the 289 participants who knew the names of their antiretroviral drugs, about two thirds of both males and females were on first-line antiretroviral therapy regimen, with the rest on second-line regimen. There was no participant on third-line or salvage regimen.

Concerning respondents' awareness of their HIV status, the mean age at becoming aware that they were living with HIV was 13.3 (±3.3) years. There was no significant difference in age of awareness of status between males and females. The information on their HIV status was disclosed to respondents by a parent/caregiver (61.6%) or a healthcare worker (38.4%).

Only a quarter of respondents had disclosed their HIV status to others, with significantly less males (19.3%) having done so than females (19.3% versus 32.3%; OR =0.50 [95% CI: 0.32 – 0.79]; p = 0.003). HIV status disclosure was to friends (57.8%) [including boy/girlfriend] and relatives (42.2%) [parents, siblings, and spouse]. Males were significantly more likely to disclose to relatives than females (OR = 3.25 [95% CI: 1.46-7.23]; p = 0.003).

Among the respondents that had not disclosed their status to anyone, the major reason given was to avoid stigma and discrimination (48.4%). Other reasons included HIV

being a private matter (23.8%), being told by parents/caregivers not to tell anyone (9.8%) and not being ready to disclose (4.9%). There was no significant difference between the sexes on reasons for non-disclosure of status.

Table 4.2: HIV-Related Characteristics of Respondents

Characteristic	Total n (%)	Males n (%)	Females n (%)	OR [95% CI] /t-stat	P
Mode of Transmission				0.81	0.4221
Perinatal	340 (81.7)	173 (80.1)	167 (83.5)	[0.49-1.35]	
Other	76 (18.3)	42 (19.9)	33 (16.5)		
Age at Diagnosis (y)				0.0773	0.938
Mean (± SD)	5.5 (±5.8)	5.5 (±5.9)	5.5 (±5.7)		
ART Line:				0.79	0.345
First	191 (66.1)	96 (63.6)	95 (68.8)	[0.48-1.29]	
Other	98 (33.9)	55 (36.9)	43 (31.2)		
ART Duration (y):				-0.4728	0.637
Mean (± SD)	12.2 (±5.1)	12.4 (±5.2)	12.0 (±5.1)		
Age at Knowledge of HIV Status				-0.7153	0.475
Mean (± SD)	13.3 (±3.3)	13.1 (±3.5)	13.9 (±3.0)		
Who disclosed your status:				1.21	0.362
	237 (61.6)	125 (64.1)	112 (59.6)	[0.80-1.83]	
Caregiver	148 (38.4)	70 (33.9)	76 (40.4)		
Health worker					
Have you disclosed your status to anyone:				0.50 [0.32-0.79]	**0.003**
Yes	106 (25.7)	41 (19.3)	65 (32.3)		
No	306 (74.3)	171 (80.7)	136 (67.7)		
To whom have you disclosed your status*:				3.25 [1.46-7.23]	**0.003**
Relatives	46 (42.2)	26 (59.1)	20 (30.8)		
Friend	63 (57.8)	18 (40.9)	45 (69.2)		
Reason for non-disclosure:				1.08 [0.65-1.79]	0.758
Avoid stigma	118 (48.4)	66 (49.3)	52 (47.3)		
Other	126 (51.6)	68 (50.7)	58 (52.7)		

**Some respondents disclosed to more than one person*

4.1.6 Social Habits of Respondents

About one quarter of respondents used alcohol, with no significant difference between males and females. A small minority of respondents (27 [6.3%]) admitted that they smoked. Males had higher odds of smoking than females (OR= 1.69 [95% CI: 0.76-3.78]) but this was not statistically significant. The majority of males (60.0%) and females (66.7%) smoked shisha, while the rest smoked cigarettes.

Male respondents were significantly more likely to take street/recreational drugs than females (OR =3.46 [95% CI:1.37-8.78]). The commonest drug was cannabis (77.1%) followed by methamphetamine (8.6%), ecstasy (5.7%), and rohypnol, ketamine, and tramadol at 2.9% each. These results are shown in Table 4.3.

Table 4.3: Social Habits of Respondents

Characteristic	**Total** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
Alcohol (401)**:**				1.16 [0.74-1.83]	0.508
Yes	101 (25.2)	54 (26.6)	47 (23.7)		
Never	300 (74.8)	149 (73.4)	151 (76.3)		
Smoke (428)**:**				1.69 [0.76-3.78]	0.196
Yes	27 (6.3)	17 (7.8)	10 (4.8)		
Never	401 (93.7)	201 (92.2)	200 (95.2)		
Street/Recreational Drugs (391)**:**				3.46 [1.37-8.78]	**0.006**
Yes	26 (6.7)	21 (10.3)	6 (3.2)		
No	364 (93.3)	183 (89.7)	181 (96.8)		

4.1.7. Communication with Caregivers on SRH and Other Important Matters

About three quarters of male and female respondents found it very/averagely easy to have discussions on matters of importance to them, such as academic and career-related issues with their parents/caregivers, but only about a third of respondents had ever had discussions on sexual and reproductive health issues with their parents/caregivers. Male respondents were significantly less likely to discuss SRH issues with parents/caregivers than females (24.3% versus 40.5%; OR = 0.47 [0.31 – 0.71]; $p < 0.001$).

Just less than half of male and female respondents discussed SRH-related matters with others apart from parents/caregivers, but significantly more males discussed this with friends compared to females (85.4% versus 70.4%; OR = 2.46 [95% CI = 1.18 – 5.10]; $p = 0.014$). The details are shown in Table 4.4.

Table 4.4: Communication of SRH with Caregivers and Others

Characteristic	Total n (%)	Males n (%)	Females n (%)	OR [95% CI]	P
Important Issues with Parents/Caregivers				1.06	0.793
Easy/Average	331 (76.3)	172 (76.7)	159 (75.7)	[0.68-1.65]	
Difficult/Never	103 (23.7)	52 (23.3)	51 (24.3)		
SRH with Parents/Caregivers				0.47	**<0.001**
Yes	139 (32.2)	54 (24.3)	85 (40.5)	[0.31-0.71]	
Never	293 (67.8)	168 (75.7)	125 (59.5)		
SRH with Others				0.97	0.869
Yes:	197 (46.9)	100 (44.4)	97 (47.3)	[0.66-1.42	
No	223 (53.1)	115 (55.6)	108 (52.7)		
SRH with Friends				2.46	**0.014**
Yes	145 (77.5)	76 (85.4)	69 (70.4)	[1.18-5.10]	
No	42 (22.5)	13 (14.6)	29 (29.6)		

4.2 Sexual and Reproductive Health Knowledge of Respondents

4.2.1 Knowledge Scores of Respondents on Various Aspects of SRH

The knowledge of respondents was evaluated for four different aspects of sexual and reproductive health, namely puberty (2 questions), menstruation (10 questions), pregnancy and contraception (11 questions), and HIV and other sexually transmitted infections (9 questions). Each correct answer was scored 1.0 and an incorrect/don't know, or no answer was scored 0. The mean scores for individual respondents for each aspect of SRH were obtained and multiplied by 100 to get the mean percentage score. For overall knowledge of SRH, the scores for all the assessed aspects of SRH were summed up and divided by four and multiplied by 100 to get the weighted mean knowledge score for each respondent. A score of ≥60% was taken as good knowledge while a score <60% was regarded as poor knowledge.

Female respondents had a good mean knowledge score of puberty (73% [± 31]) and menstruation (69% [± 19]), while male respondents had a good mean knowledge score for only puberty (70% [±33]). The worst knowledge scores were for pregnancy and contraception for both male and female respondents (40% [±22] and 41% [±22] respectively). Male respondents had lower mean knowledge scores for all aspects of SRH, but the differences were statistically significant only for menstruation (43% [±28] versus 69% [±19] $p < 0.001$) and combined SRH knowledge (45% [±21] versus 54% [±17]; $p < 0.001$).These results are shown in table 4.5.

Table 4.5: Knowledge Scores of Respondents by Sex

Characteristic	% Knowledge Scores (Mean (±SD))			t-test	p
	Total	Male	Female		
Puberty	73 (±31)	70 (±33)	75 (±29)	-1.7773	0.076
Menstruation	56 (±27)	43 (±28)	69 (±19)	-10.4484	**<0.001**
Pregnancy & Contraception	40 (±22)	40 (±22)	41 (±22)	-0.6561	0.512
HIV & STIs	49 (±23)	48 (±24)	51 (±23)	-1.2124	0.226
Combined SRH	49 (±20)	45 (±21)	54 (±17)	-4.8376	**<0.001**

4.2.2. Proportion of Respondents with Good SRH Knowledge

The proportion of participants with good and poor knowledge of the different aspects of SRH is shown in Table 4.6. About two thirds of male and female respondents had good knowledge of puberty, but a significantly lower proportion of males had good knowledge of menstruation compared to females (36.8% versus 77.2%; $p < 0.001$). Only one-fifth and one-third of respondents had good knowledge of pregnancy and contraception, and HIV and STIs respectively, with no differences by sex. However, more female respondents displayed good knowledge of overall SRH knowledge compared to males (35.3% versus 25.4%; $p = 0.023$).

Table 4.6: Respondents Overall Knowledge of Different Aspects of SRH

Characteristic	**Total** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
Puberty:				0.91	0.642
Good	294 (66.4)	149 (65.4)	145 (67.4)	[0.61-1.35	
Poor	149 (33.6)	79 (34.6)	70 (32.6)		
Menstruation:				0.17	**<0.001**
Good	250 (56.4)	84 (36.8)	166 (77.2)	[0.1- 0.26]	
Poor	180 (43.6)	144 (63.2)	49 (22.8)		
Pregnancy &				1.04	0.879
Contraception:				[0.65-1.64]	
Good	92 (20.8)	48 (21.1)	44 (20.5)		
Poor	351 (79.2)	180 (78.9)	171 (79.5)		
HIV & STIs				1.14	0.505
Good	149 (33.6)	80 (35.1)	69 (32.1)	[0.77-1.70]	
Poor	294 (66.4)	148 (64.9)	146 (67.9)		
Combined SRH				0.62	**0.023**
Good	134 (30.2)	58 (25.4)	76 (35.3)	[0.41-0.94]	
Poor	309 (69.8)	170 (74.6)	139 (64.7)		

4.2.3. Knowledge of Different Aspects of SRH among Respondents

4.2.3.1 Puberty

Specific questions on Puberty included respondents' understanding of the term "puberty" and the features associated with puberty in both males and females. Most respondents (84.4%) displayed a correct understanding of what puberty is, with no significant differences between the sexes. For the features associated with puberty such as increased growth, breast development, onset of menstruation in females and deepening of the voice in males, a similar proportion of just over half of male and female respondents were aware of these features as shown in Table 4.7.

Table 4.7: Knowledge of Puberty among Respondents

Question	**Total** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
What is Puberty:				0.59 [0.35 – 1.00]	0.050
Correct Answer	374 (84.4)	185 (81.1)	189 (87.9)		
Wrong Answer/DK*	69 (15.6)	43 (18.9)	26 (12.1)		
Features Associated with Puberty:				0.98 [0.68 – 1.43]	0.925
Good Knowledge	238 (53.7)	122 (53.5)	116 (54.0)		
Poor Knowledge	205 (46.3)	106 (46.5)	99 (46.0)		

**DK = Don't know*

4.2.3.2 Menstruation

A significantly higher proportion of female respondents had good knowledge on all questions in the section on menstruation as shown in Table 4.8. The best knowledge among respondents was demonstrated for the question, 'what is menstruation?', with 73.2% of males and 95.8% of females giving the correct answer. The item with the lowest proportion of knowledgeable respondents was 'materials used for menstruation', with only 10.5% of males and 30.2% of females knowing at least 3 of the 6 materials listed (sanitary pad, tissue paper, cotton wool, cloth, tampon and menstrual cup). The best-known material for menstruation for all respondents was the sanitary pad (76.3% and 89.8% respectively for males and females), while the least known was cloth for males (6.6%) and menstrual cup for females (11.6%).

Only about a third of females and less than one fifth of males could correctly identify the source of the menstrual flow. About half of females thought the flow was from the urinary bladder, while majority of males could not say where the flow emanated from. A significantly lower proportion of males knew that growth does not stop at menarche (when menstruation commences) (OR = 0.32 [95% CI: 0.22 – 0.48]; p=0.000) and that dysmenorrhea did not stop at coitarche (onset of sexual intercourse) (OR = 0.41[95% CI: 0.28 – 0.60]; p =0.000). These results are shown in Table 4.8.

Table 4.8: **Knowledge of Menstruation among Respondents**

Question	Total	Males	Females	OR	P
	n (%)	n (%)	n (%)	[95% CI]	
What is Menstruation:				0.12	**<0.001**
Correct Answer	373 (84.2)	167 (73.2)	206 (95.8)	[0.06- 0.25]	
Incorrect Answer/DK*	70 (15.8)	61 (26.8)	9 (4.2)		
Age of Menarche:				0.30	**<0.001**
10-15 years	246 (55.5)	95 (41.7)	151 (70.2)	[0.20- 0.45]	
Others/ DK*	197 (44.5)	133 (58.3)	64 (29.8)		
Duration of Menstruation:				0.26 [0.18-0.39]	**<0.001**
3-5 days	205 (46.3)	70 (30.7)	135 (62.8)		
Others/ DK*	238 (53.7)	158 (69.3)	80 (37.2)		
Source of Menstrual Flow				0.50 [0.32-0.77]	**0.001**
Womb/Vagina	114 (25.7)	44 (19.3)	70 (32.6)		
Other/ DK	329 (74.3)	184 (80.7)	145 (67.4)		
Materials for Menstruation:				0.27 [0.16-0.45]	**<0.001**
Know ≥ 3	89 (20.1)	24 (10.5)	65 (30.2)		
Know < 3	354 (79.9)	204 (89.5)	150 (69.2)		
Growth Stops at Menarche:				0.32 [0.22-0.48]	**<0.001**
No	254 (57.3)	101 (44.3)	153 (71.2)		
Yes/DK*	189 (42.7)	127 (55.7)	62 (28.8)		
Dysmenorrhoea Stops at Coitarche:				0.41 [0.28-0.60]	**<0.001**
No	184 (41.5)	71 (31.1)	113 (52.6)		
Yes/DK*	259 (58.5)	157 (68.9)	102 (47.4)		

**DK = Don't Know*

4.2.3.3 Pregnancy and Contraception

4.2.3.3.1 Pregnancy

With regards to pregnancy, significantly fewer males than females (49.1% versus 67.9%) knew that a girl or woman could get pregnant from the first sexual intercourse (OR = 0.46 [95% CI: 0.31 – 0.67]; p <0.001). On the very important question of the time during the menstrual cycle when a girl/woman is most likely to get pregnant following sexual intercourse, i.e., the fertile period, only 10.1% of males and 14.4% of females knew that it is the middle of the cycle, demonstrating gross ignorance of this information that could enable adolescents and young adults to avoid unplanned pregnancies. Majority of females (26.0%) thought pregnancy more likely to result just after the menstrual period, while majority of males (39.3%) did not know when pregnancy was most likely to occur following sexual intercourse. These results are detailed in Table 4.9a.

Table 4.9a: Pregnancy Knowledge among Respondents

Question	All n (%)	Males n (%)	Females n (%)	OR [95% CI]	p
Pregnancy can result from first sexual intercourse:				0.46 [0.31-0.67]	**<0.001**
Yes	258 (58.2)	112 (49.1)	146 (67.9)		
No	185 (41.8	116 (51.9)	69 (32.1)		
Best time in menstrual cycle to get Pregnant:				0.67 [0.37-1.18]	0.164
Middle of Cycle	54 (12.2)	23 (10.1)	31 (14.4)		
Other:	389 (87.8)	205 (89.9)	184 (85.6)		
Anytime	*49 (11.1)*	*19 (8.3)*	*30 (14.0)*		
During menstruation	*51 (11.5)*	*24 (10.5)*	*27 (12.6)*		
Immediately after menses	*87 (19.6)*	*31 (13.6)*	*56 (26.0)*		
Just before menses	*28 (6.3)*	*6 (2.6)*	*22 (10.2)*		
Don't Know/NR	*174 (39.3)*	*125 (54.8)*	*49 (22.8)*		

4.2.3.3.2 Contraception

Condoms

The best-known methods of contraception were male condoms (82.6%) and female condoms (61.2%). There was no significant difference between male and female respondents regarding the knowledge of male and female condoms (p = 0.096 and 0.383 respectively). Of those who knew about male and female condoms, only about 60% knew where they could be obtained.

While the majority of male and female respondents knew that a condom should not be used more than once (55.7% and 53.9% respectively; p = 0.712), a significantly higher proportion of males thought that condoms reduced sexual pleasure (p = 0.017). These results are shown in Table 4.9b.

Table 4.9b: Condom Knowledge among Respondents

Item	All n (%)	Males n (%)	Females n (%)	OR [95% CI]	p
Male Condoms:				1.52 [0.93 – 2.50]	0.096
Yes	366 (82.6)	195 (85.5)	171 (79.5)		
No/Don't know	77 (17.4)	33 (14.5)	44 (20.5)		
Know where to get male condom:				1.42 [0.94-2.15]	0.096
Yes	201(54.9)	115 (59.0)	86 (50.3)		
No	165 (45.1)	80 (41.0)	85 (49.7)		
Female Condoms:				0.84 [0.58 – 1.24]	0.383
Yes	271 (61.2)	135 (59.2)	136 (63.2)		
No/Don't know	162 (38.8)	93 (40.8)	79 (36.8)		
Know where to get female male condom:				1.59 [0.98-2.57]	0.059
Yes	121 (44.6)	68 (50.4)	53 (39.0)		
No	150 (55.4)	67 (49.6)	83 (61.0)		
Condom can be used more than once:				1.07 [0.74 – 1.56]	0.712
No	243 (54.9)	127 (55.7)	116 (53.9)		
Yes/Don't know	200 (45.1)	101 (44.3)	99 (46.1)		
Condoms reduce sexual pleasure:				1.64 [1.09 – 2.48]	**0.017**
Yes	135 (30.5)	81 (35.5)	54 (25.1)		
No/Don't know	308 (69.5)	147 (64.5)	161 (74.9)		

Other Contraceptive Methods

The best-known contraceptive methods after condoms were withdrawal (coitus interruptus) (55.1%) and emergency contraception (53.3%). Oral contraceptive pill (OCP) was known by about a quarter of male and slightly less than a third of female respondents, and less than one-fifth of all respondents knew about male (15.1%) and female sterilization (18.3%). Significantly more males were aware of male sterilization. These are shown on Table 4.9c.

Table 4.9c: Knowledge of Other Contraceptive Methods

Question	All n (%)	Males n (%)	Females n (%)	OR [95% CI]	P
Withdrawal:				1.26 [0.87-1.84]	0.220
Yes	244 (55.1)	132 (57.9)	112 (52.1)		
No	199 (44.9)	96 (42.1)	103 (47.9)		
Emergency Pills:				0.61 [0.42-0.89]	**0.010**
Yes	236 (53.3)	108 (47.4)	128 (59.5)		
No	207 (46.7)	120 (52.6)	87 (40.5)		
Periodic Abstinence:				1.09 [0.75-1.58]	0.647
Yes	211 (47.6)	111 (48.7)	100 (46.5)		
No	232 (52.4)	117 (51.3)	115 (53.5)		
OCP:				0.73 [0.48-1.12]	0.148
Yes	120 (27.1)	55 (24.1)	65 (30.2)		
No	323 (72.9)	173 (75.9)	150 (69.8)		
Female Sterilization:				1.47 [0.90-2.40]	0.121
Yes	81 (18.3)	48 (21.1)	33 (15.3)		
No	362 (81.7)	180 (78.9)	182 (84.7)		
Male Sterilization:				2.16 [1.25-3.73]	**0.005**
Yes	67 (15.1)	45 (19.7)	22 (10.2)		
No	376 (84.9)	183 (80.3)	193 (89.8)		

* *OCP = Oral Contraceptive Pills*

Long-acting Reversible Contraception (LARC)

Assessment of the knowledge of long-acting reversible contraceptive methods, which are recommended for young people for its safety, convenience, and adherence advantages, showed that less than one-fifth of respondents knew about intra-uterine devices (IUDs) (18.5%) and implants (17.2%), and only about one-third (33.6%) knew about injectable contraception. Male respondents had lower knowledge of LARC and this difference was significance for knowledge of injectables (OR = 0.65 [95% CI: 0.45 – 0.96]; p = 0.032). This is shown in Table 4.9d below.

Table 4.9d: Knowledge of LARC among Respondents

LARC Method	**All** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
Intra-uterine Device:				0.88 [0.54-1.42]	0.590
Yes	82 (18.5)	40 (17.5)	42 (19.5)		
No	361 (81.5)	188 (82.5)	173 (80.5)		
Injectables:				0.65 [0.45-0.96]	**0.032**
Yes	149 (33.6)	66 (28.9)	83 (38.6)		
No	294 (66.4)	162 (71.1)	132 (61.4)		
Implant:				0.63 [0.39-1.05]	0.073
Yes	76 (17.2)	32 (14.0)	44 (20.5)		
No	367 (82.8)	196 (86.0)	171 (79.5)		

Knowledge of Unscientific Methods of Contraception

Awareness of unscientific methods of contraception like washing the vagina, drinking an alcoholic beverage or lime juice, and drinking salt water immediately after sex was generally low (14.4%) among respondents. The most known of these methods was the immediate washing of the vagina after sex, followed by the drinking of an alcoholic beverages like "Stout" and Alomo Bitters®, or lime juice, with no significant differences between males and females. However, males were significantly less likely to think that drinking salt water immediately after sex could prevent pregnancy (8.8% versus 14.9%; p = 0.044). These findings are shown in Table 4.9e.

Table 4.9e: Knowledge of Unscientific Methods of Contraception

Item	**All** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
Vaginal Wash				0.81 [0.47-1.37]	0.427
Yes	64 (14.4)	30 (13.2)	34 (15.8)		
Don't know	379 (85.6)	198 (86.8)	181 (84.2)		
Drinking Alcohol/Lime				0.64 [0.37-1.11]	0.111
Yes	59 (13.3)	25 (11.0)	35 (15.8)		
Don't know	384 (86.7)	203 (89.0)	180 (84.2)		
Drinking Salt Water				0.55 [0.30-0.99]	**0.044**
Yes	52 (11.7)	20 (8.8)	32 (14.9)		
Don't know	390 (88.0)	208 (91.2)	182 (84.7)		

Best Contraceptive Method for Young People

Both male and female respondents identified condoms as the best contraceptive method for young people (65.2% and 71.4% respectively), with implants being the least identified method (0.5% and 0.6% respectively). Figure 4.3 shows the respondents' choices of the best contraceptive methods for young people.

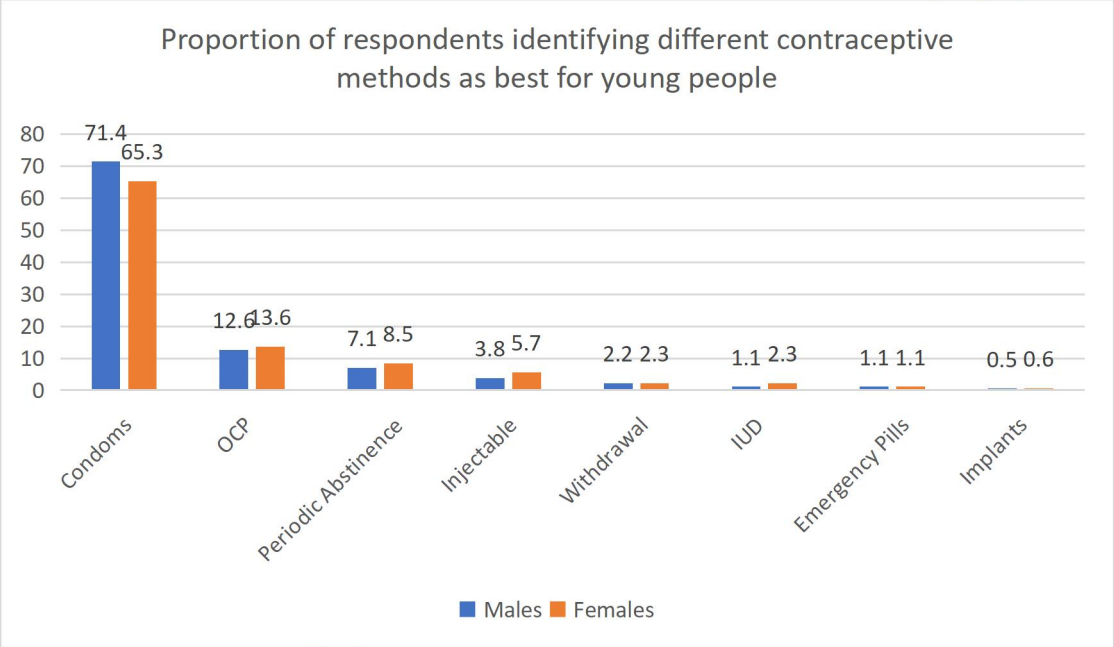

Figure 4.4: Best Contraceptive methods for Young People

4.2.4. HIV and Other Sexually Transmitted Infections

4.2.4.1: HIV

Concerning knowledge of HIV, despite living with the infection, more than half of all respondents were not aware that there is currently no cure for HIV (51.3% and 52.6% for males and females respectively). In the same vein, more than a third of respondents believed that people with HIV always looked ill and emaciated (66.7% versus 59.1%). However, most respondents knew that there is a simple test to detect HIV, with significantly more males (86.4%) than females (79.0%) being aware of this (OR = 1.68 [95% CI: 1.02 – 2.78]; p = 0.041).

Table 4.10: Knowledge of HIV among Respondents

Question	**All** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**p**
There is a cure for HIV				1.05	0.794
No	213 (48.1)	111 (48.7)	102 (47.4)	[0.72-1.52]	
Yes/Don't know	240 (51.9)	117 (51.3)	113 (52.6)		
People with HIV always look emaciated				1.39 [0.94-2.04]	0.097
No	279 (63.0)	152 (66.7)	127 (59.1)		
Yes/Don't know	164 (37.0)	76 (33.3)	88 (40.9)		
There is a simple test to detect HIV in someone				1.68 [1.02-2.78]	**0.041**
Yes	367 (82.8)	197 (86.4)	170 (79.0)		
No/Don't know	76 (17.2)	31 (13.6)	45 (21.0)		

4.2.4.2. Other Sexually Transmitted Infections

A similar proportion of male and female respondents knew about other STIs apart from HIV, with the majority of respondents knowing about gonorrhea (66.2% of males and 67.9% of females) and syphilis (48.7% of males and 50.7% of females), while the least known STI was trichomoniasis (12.3% and 10.2% for males and females, respectively). The knowledge of the major symptoms of STIs in males and females such as genital discharge, painful urination, and warts, blisters or sores on the genitals (19.9%); where treatment could be obtained for STIs (18.1%), and preventive strategies for STIs such as abstinence, faithfulness to a faithful partner, use of condoms, and use of a preventive medicine (19.4%) was generally poor among all respondents (Table 4.11).

Table 4.11: Knowledge of STI among Respondents

Question	**All** n (%)	**Males** n (%)	**Females** n (%)	**OR** [95% CI]	**P**
Symptoms of STIs				0.78 [0.49-1.25]	0.307
Good Knowledge	88 (19.9)	41 (18.0)	47 (21.8)		
Poor Knowledge	355 (80.1)	187 (82.0)	168 (78.2)		
Where to Get STI Treatment:				1.19 [0.73-1.93]	0.485
Good Knowledge	80 (18.1)	44 (19.3)	36 (16.7)		
Poor Knowledge	363 (81.9)	184 (80.7)	179 (83.3)		
Prevention of STI:				0.98 [0.62-1.58]	0.950
Good Knowledge	86 (19.4)	44 (19.3)	42 (19.5)		
Poor Knowledge	357 (80.6)	184 (80.7)	173 (80.5)		

4.2.5. Sources of SRH Information for Respondents

The respondents obtained their SRH information from several sources. The commonest source for males was teachers (39.9%), followed by the internet/social media (26.3%), and healthcare workers (21.5%). For female respondents, the commonest source of SRH knowledge was also teachers (45.6%), followed by the mother (36.7%), and healthcare workers (29.8%). The least common sources of information for respondents were fathers (6.6% and 7.0% for males and females respectively) and siblings (4.8% and 7.0% for males and females respectively) [Figure 4.5].

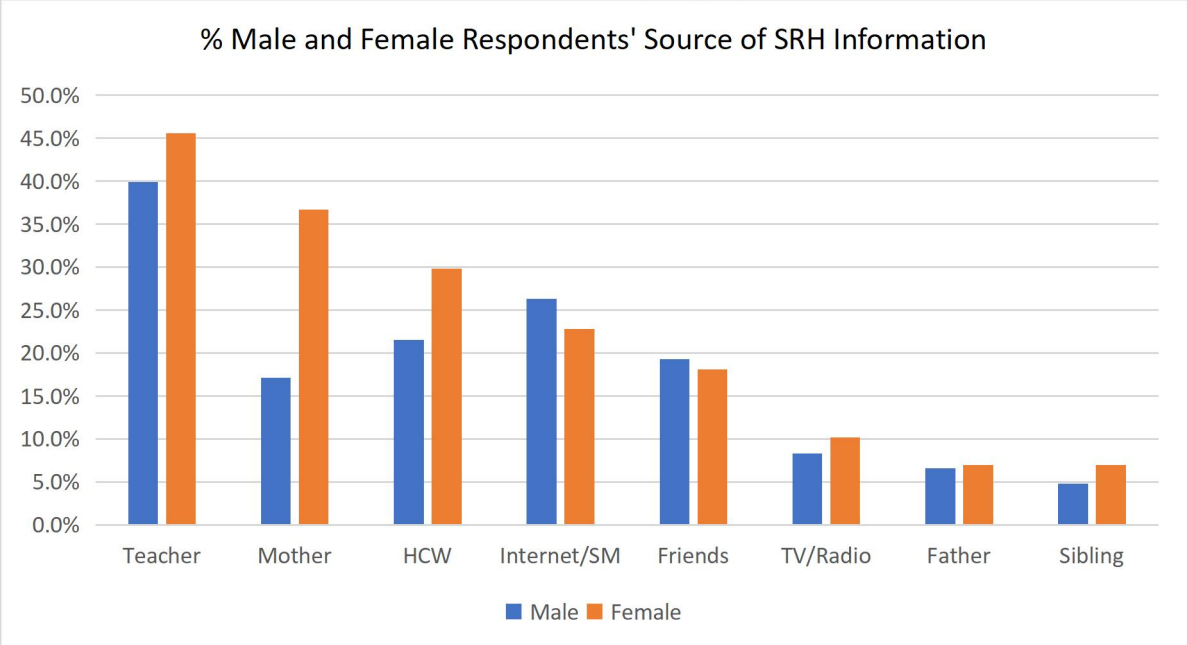

Figure 4.5. Sources of SRH Information for Respondents

4.2.6. Factors Associated with Knowledge of SRH by Respondents

4.2.6.1. Knowledge of SRH by Age Groups

Respondents were divided into two age groups (adolescents [14-19 years] and young adults [20-24 years]) to assess the effect of age on knowledge of SRH. A similar proportion of adolescents (65.3%) and young adults (68.5%) had good knowledge scores (≥ 0.60) for puberty. However, with regards to the other aspects of SRH, significantly lower proportions of adolescents had good knowledge of menstruation (52.0% vs 65.1%; p = 0.009), pregnancy and contraception (15.5% vs 30.9%; p <0 001), and HIV and other STIs (27.6% versus 45.6%; p <0 001), as well as overall SRH (22.8% vs 45.0%; p <0 001). These findings are shown in Table 4.12.

Table 4.12: Knowledge of SRH by Age Group of Respondents

Aspect SRH	Age Groups [n (%)]		OR [95% CI]	p value
	20-24 years (n=149)	**14-19 years** (n=294)		
Puberty:			1.15 [0.76-1.76]	0.507
Good	102 (68.5)	192 (65.3)		
Poor	47 (31.5)	102 (34.7)		
Menstruation:			1.72 [1.14-2.58]	**0.009**
Good	97 (65.1)	153 (52.0)		
Poor	52 (34.9)	141 (48.0)		
Pregnancy and Contraception:			2.41 [1.51-3.85]	**<0.001**
Good	46 (30.9)	46 (15.6)		
Poor	103 (69.1)	248 (84.4)		
HIV & other STIs:			2.21 [1.46-3.33]	**<0.001**
Good	68 (45.6)	81 (27.6)		
Poor	81 (54.4)	213 (72.4)		
Overall SRH Knowledge:			2.77 [1.81-4.22]	**<0.001**
Good	67 (45.0)	67 (22.8)		
Poor	82 (55.0)	227 (77.2)		

It is worth noting that with regards to age, there was a linear increase in proportion of participants with good knowledge of all aspects of SRH combined as age increased, from 10.0% in the youngest respondents (14-year-olds) to 70.8% in the oldest respondents (24-year-olds). This is depicted in Figure 4.6.

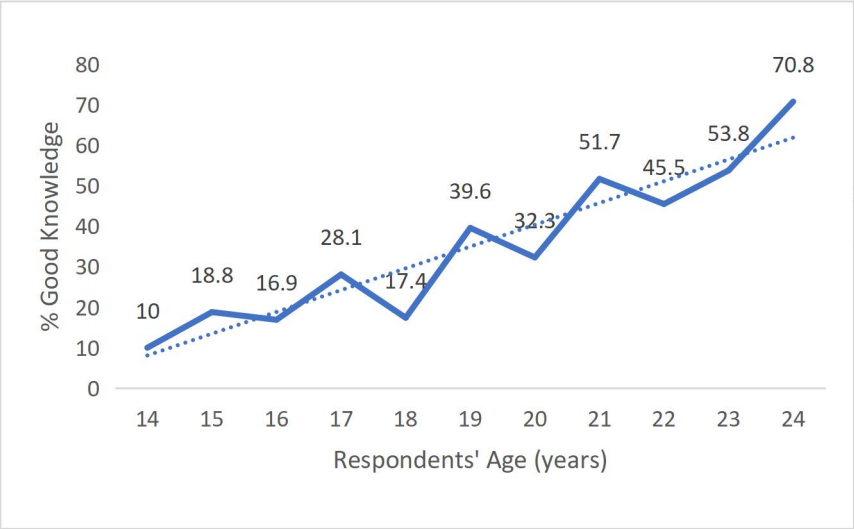

Figure 4.6: Knowledge of SRH by Age of Respondents

4.2.6.2. Knowledge of SRH by Parental Status

The assessment of the effect of parental status (orphan status) on knowledge of sexual and reproductive health among study respondents showed that those with both parents alive were more knowledgeable about puberty than those who had lost one or both parents. On the other hand, orphaned respondents were more knowledgeable about menstruation, pregnancy and contraception, and HIV and other STIs. These differences were, however, not statistically significant as shown in Table 4.13.

Table 4.13: Respondent Knowledge of SRH by Parental Status

SRH Aspect	Parental Status [n (%)]		OR [95% CI]	p
	Deceased/Separated (n=157)	Living Together (n=286)		
Puberty:			0.83 [0.55-1.25]	0.378
Good	100 (63.7)	194 (67.8)		
Poor	57 (36.3)	92 (32.2)		
Menstruation:			1.35 [0.91-2.00]	0.138
Good	96 (61.1)	154 (53.8)		
Poor	61 (38.9)	132 (46.2)		
Pregnancy and Contraception:			1.45 [0.91-2.32	0.117
Good	39 (24.8)	53 (18.5)		
Poor	118 (75.2)	233 (81.5)		
HIV & STIs:			1.31 [0.87-1.97]	0.193
Good	59 (37.6)	90 (31.5)		
Poor	98 (62.4)	196 (68.5)		
Overall SRH:			1.48 [0.97-2.24]	0.066
Good	56 (35.7)	78 (27.3)		
Poor	101 (64.3)	208 (72.7)		

4.2.6.3. Knowledge of SRH by School Status

Assessing sexual and reproductive health knowledge by school status, i.e. whether the respondents were in school or out-of-school, showed that in-school respondents were significantly more knowledgeable about puberty (OR = 1.58 [1.06 – 2.35]; p = 0.026) and menstruation (OR = 1.51 [95% CI:1.02 – 2.21]; p = 0.037) than those out of school. However, there was no significant difference in knowledge of pregnancy and contraception, HIV and other STIs, and combined SRH was similar between in-school and out-of-school respondents (Table 4.14).

Table 4.14: Knowledge of SRH by School Status of Respondents

SRH Aspect	School Status [n (%)]		OR [95% CI]	p value
	In-school (n=270)	Out-of-School (n=173)		
Puberty:			1.58 [1.06 – 2.35]	**0.026**
Good	190 (70.4)	104 (60.1)		
Poor	80 (29.6)	69 (39.9)		
Menstruation:			1.51 [1.02 – 2.21]	**0.037**
Good	163 (60.4)	87 (50.3)		
Poor	107 (39.6)	86 (49.7)		
Pregnancy and Contraception:			0.94 [0.59 – 1.50]	0.796
Good	55 (20.4)	37 (21.4)		
Poor	215 (79.6)	136 (78.6)		
HIV & STIs:			1.10 [0.73 – 1.65]	0.652
Good	93 (34.4)	56 (32.4)		
Poor	177 (65.6)	117 (67.6)		
Overall SRH			1.06 [0.70-1.61]	0.778
Good	83 (30.7)	51 (29.5)		
Poor	187 (69.3)	122 (70.5)		

4.2.6.4. Knowledge of SRH and Comprehensive Sexuality Education (CSE)

Assessing the effect of CSE on knowledge of SRH showed that respondents who had received CSE were significantly more knowledgeable in all aspects of SRH than those who had not received/could not remember receiving/gave no response regarding attendance at CSE classes. These differences were significant for puberty (OR = 1.83 [95% CI: 1.18 – 2.85]; p = 0.007), menstruation (OR = 3.99 [95% CI: 2.52 – 6.32]; p <0.001), HIV and other STIs (OR = 2.34 [95% CI: 1.41 – 3.90]; p <0.001), and overall SRH knowledge (OR = 2.21 [95% CI: 1.31 – 3.74]; p = 0.002). The knowledge of pregnancy and contraception was similarly poor among respondents that had and had not received CSE, as shown in Table 4.15.

Table 4.15: CSE and SRH Knowledge of Respondents

SRH Aspect	CSE Status [n (%)]		OR [95% CI]	p
	Had CSE (n=332)	No CSE (n=111)		
Puberty:			1.83 [1.18-2.85]	**0.007**
Good	232 (69.9)	62 (55.9)		
Poor	100 (30.1)	49 (44.1)		
Menstruation:			3.99 [2.52-6.32]	**<0.001**
Good	215 (64.8)	35 (31.5)		
Poor	117 (35.2)	76 (68.5)		
Pregnancy and Contraception:			1.48 [0.84-2.61]	0.172
Good	74 (22.3)	18 (16.2)		
Poor	258 (77.7)	93 (83.8)		
HIV & STIs:			2.34 [1.41-3.90]	**<0.001**
Good	126 (38.0)	23 (20.4)		
Poor	206 (62.0)	88 (79.6)		
Overall SRH			2.21 [1.31-3.74]	**0.002**
Good	113 (34.0)	21 (18.9)		
Poor	219 (65.0)	90 (81.1)		

4.2.6.5 Knowledge of SRH by Socioeconomic Status of Respondents

Type of residence was used as a surrogate for socioeconomic status of respondents[1,2]. Respondents who lived in a 2-bedroom flat or bigger accommodation were regarded as having a higher socioeconomic status, while those who lived in accommodation smaller than a 2-bedroom flat were regarded as having a lower socioeconomic status.

The SRH knowledge of respondents was assessed with regard to the type of residential accommodation they lived in. The residential accommodation type was dichotomized to get low SES and moderate/high SES. One or two rooms in a tenement building with shared conveniences and one-bedroom self-contained apartments (< 2-bedroom apartment) were regarded as a surrogate for low SES and compared with a 2-bedroom or bigger apartment/housing (moderate/high SES). Respondents in the 2-bedroom or bigger accommodation were more knowledgeable in all aspects of SRH than their counterparts in smaller residential spaces. These differences were statistically significant for menstruation (OR = 1.47 [95% CI: 1.00 – 2.16]; p = 0.049), HIV and other STIs (OR = 1.56 [95% CI: 1.03 – 2.34]; p = 0.033), and combined SRH knowledge (OR = 1.75 [95% CI: 1.15 – 2.68]; p = 0.009). This is shown in Table 4.16 below.

Table 4.16: Knowledge of SRH by Socioeconomic Status

SRH Aspect	Socioeconomic Status		OR [95% CI]	p
	Higher (n=247)	**Lower** (n=185)		
Puberty:			1.20 [0.80-1.80]	0.371
Good	169 (68.4)	119 (64.3)		
Poor	78 (31.6)	66 (35.7)		
Menstruation:			1.47 [1.00-2.16]	**0.049**
Good	149 (60.3)	94 (50.8)		
Poor	98 (39.7)	91 (49.2)		
Pregnancy and Contraception:			1.12 [0.70-1.79]	0.639
Good	54 (21.9)	37 (20.0)		
Poor	193 (78.1)	148 (80.0)		
HIV & STIs:			1.56 [1.03 – 2.34]	**0.033**
Good	95 (38.5)	53 (28.6)		
Poor	152 (61.5)	132 (71.4)		
Overall SRH			1.75 [1.15 – 2.68]	**0.009**
Good	89 (36.0)	45 (24.3)		
Poor	158 (64.0)	140 (75.7)		

4.2.6.6 Knowledge of SRH by SRH Communication with Parents/Caregivers

About one third of respondents (139, 31.4%) had SRH-related conversations with their parents and caregivers, two thirds (293; 66.1%) never had such discussions, and a small minority (11, 2.5%) supplied no response. The knowledge of SRH and its different aspects was compared between respondents who communicated on SRH and those who never had such communications with their parents/caregivers. Results showed that those who communicated with their parents were more likely to have good knowledge of SRH and all its aspects than those who never communicated on SRH. These differences were significant for knowledge of menstruation (OR = 2.31 [95% CI:1.50 – 3.55]; p <0.001), and HIV and other STIs (OR = 1.85 [95% CI:1.22 – 2.81]; p = 0.004) as well as for combined SRH knowledge (OR = 2.47 [95% CI:1.61 – 3.79]; p <0.001), as shown in Table 4.17.

Table 4.17: Knowledge of SRH by SRH Communication

SRH Aspect	SRH Communication [n (%)]		OR [95% CI]	p value
	Yes (n=139)	No (n=293)		
Puberty:			1.30 [0.84-2.00]	0.244
Good	98 (70.5)	190 (64.8)		
Poor	41 (29.5)	103 (35.2)		
Menstruation:			2.31 [1.50-3.55]	**0.001**
Good	98 (70.5)	149 (50.9)		
Poor	41 (29.5)	144 (49.1)		
Pregnancy and Contraception:			1.16 [0.71-1.89]	0.546
Good	32 (23.0)	60 (20.5)		
Poor	107 (77.0)	233 (79.5)		
HIV & STIs:			1.85 [1.22-2.81]	**0.004**
Good	61 (43.9)	87 (29.7)		
Poor	78 (56.1)	206 (70.3)		
Overall SRH			2.47 [1.61 – 3.79]	**<0.001**
Good	62 (44.6)	72 (24.6)		
Poor	77 (55.4)	221 (75.4)		

4.2.6.7 Knowledge of SRH by HIV Disclosure Status of Respondents

One hundred and eight respondents (27.2%) had disclosed their HIV status to someone else. Assessment of knowledge of SRH with regards to HIV disclosure showed that a significantly higher proportion of respondents who had disclosed their status had good knowledge of all aspects of, and overall SRH knowledge. This is shown in Table 4.18 below.

Table 4.18: **Knowledge of SRH by HIV Disclosure Status**

SRH Aspect	HIV Disclosure Status		OR [95% CI]	p value
	Disclosed (n=108)	**Not Disclosed** (n=289)		
Puberty:			2.11 [1.25-3.54]	**0.004**
Good	85 (78.7)	184 (63.7)		
Poor	23 (21.3)	105 (36.3)		
Menstruation:			2.44 [1.51-3.95]	**<0.001**
Good	78 (72.2)	149 (51.6)		
Poor	30 (27.8)	140 (48.4)		
Pregnancy and Contraception:			1.83 [1.10-3.07]	**0.020**
Good	31 (28.7)	52 (18.0)		
Poor	77 (71.3)	237 (82.0)		
HIV & STIs:			2.98 [1.89-4.71]	**<0.001**
Good	50 (46.3)	81 (28.0)		
Poor	58 (53.7)	208 (72.0)		
Overall SRH			3.70 [2.32-5.89]	**<0.001**
Good	58 (53.7)	69 (23.9)		
Poor	50 (46.3)	220 (76.1)		

4.2.6.8 Alcohol Consumption and Knowledge of SRH

About one quarter (25.2%) of participants admitted to taking alcohol; a slight majority were males (53.5%) and young adults (50.5%). Assessing SRH knowledge with alcohol intake showed that a significantly higher proportion of respondents who took alcohol demonstrated good knowledge of all aspects of, and overall knowledge of SRH as shown in Table 4.19.

Table 4.19: **Alcohol Consumption and Knowledge of SRH**

SRH Aspect	**Alcohol Use**		**OR [95% CI]**	**p value**
	Yes (101)	**No** (300)		
Puberty:			1.83 [1.09-3.06]	**0.020**
Good	77 (76.2)	191 (63.7)		
Poor	24 (23.8)	109 (36.3)		
Menstruation:			1.67 [1.04-2.69]	**0.034**
Good	69 (68.3)	169 (56.3)		
Poor	32 (31.7)	131 (43.7)		
Pregnancy and Contraception:			2.21 [1.33-3.68]	**0.002**
Good	33 (32.7)	54 (18.0)		
Poor	68 (67.3)	246 (82.0)		
HIV & STIs:			2.16 [1.36-3.43	**0.001**
Good	49 (48.5)	91 (30.3)		
Poor	52 (51.5)	209 (69.7)		
Overall SRH			3.06 [1.91-4.89]	**<0.001**
Good	51 (50.5)	75 (25.0)		
Poor	50 (49.5)	225 (75.0)		

4.2.6.9 Knowledge of SRH and Sexual Experience of Respondents

Knowledge of SRH was also assessed among respondents with regards to whether they were sexually experienced or not. The results showed that respondents who had ever had sexual intercourse were significantly more knowledgeable in overall SRH (OR = 2.38 [95% CI: 1.56 - 3.64]; p <0.001), as well as in the domains of menstruation (OR = 1.65[95% CI: 1.09 – 2.49]; p = 0.016), pregnancy and contraception (OR = 2.05 [95% CI: 1.28 – 3.28]; p = 0.002), and HIV and other STIs (OR = 1.69 [95% CI: 1.11 – 2.55]; p = 0.013). There was no significant difference in the knowledge of puberty between the two groups of respondents (Table 4.20).

Table 4.20. Knowledge of SRH by Sexual Experience of Respondents

SRH Aspect	Sexually Experienced		OR [95% CI]	p
	Yes (n = 144)	No (n = 299)		
Puberty:			0.93 [0.61- 1.42]	0.737
Good	94 (65.3)	200 (66.9)		
Poor	50 (34.7)	99 (33.1)		
Menstruation:			1.65 [1.09-2.49]	**0.016**
Good	93 (64.6)	157 (52.5)		
Poor	51 (35.4)	142 (47.5)		
Pregnancy and Contraception:			2.05 [1.28-3.28]	**0.002**
Good	42 (29.2)	50 (16.7)		
Poor	102 (70.8)	249 (83.3		
HIV & STIs:			1.69 [1.11-2.55]	**0.013**
Good	60 (41.7)	89 (29.8)		
Poor	84 (58.3)	210 (70.2)		
Overall SRH			2.38 [1.56-3.64]	**<0.001**
Good	62 (43.1)	72 (24.1)		
Poor	82 (56.9)	227 (75.9)		

4.2.7 Multivariate Regression of Factors associated with SRH Knowledge

To find the independent variables that were most significantly associated with the knowledge of SRH among respondents, a multivariate logistic regression was done among the variables that yielded a p value of <0.1 in linear regression. The independent variables were sex, age group, parental status, type of residential accommodation, discussion of SRH with parents/caregivers, CSE class attendance, and sexual experience. All the variables showed a statistically significant difference in linear regression ($p < 0.05$), except for parental status with $p = 0.066$. However, in multivariate regression analysis, which corrected for confounders, there was a statistically significant difference in the two groups of each of the variables assessed. Table 4.21 shows the crude and adjusted odds ratios and the p values for all the variables.

Table 4.21: Factors associated with SRH Knowledge among Respondents

Characteristic	SRH Knowledge		COR	AOR	p
	Good	Poor	[95% CI]		
Sex:			1.60	1.06	0.001
Female	76 (35.3)	139 (64.7)	[1.07-2.41]	[1.02-1.09]	
Male	58 (25.4)	170 (74.6)			
Age Group:			2.77	1.07	0.001
20 – 24	67 (46.5)	82(53.5)	[1.81- 4.22]	[1.03-1.10]	
14 – 19	67 (22.8)	227 (77.2)			
Par. Status*:			0.68	0.95	0.018
Living Together	78 (27.3)	208 (72.7)	[0.45-1.03]	[0.93-0.99]	
Dec'd/Sep.[#]	56 (35.7)	101 (64.3)			
SES			1.75	1.04	0.015
Higher	89 (36.0)	158 (64.0)	[1.15-2.68]	[1.01-1.08]	
Lower	45 (24.3)	140 (75.7)			
CSE/FLHE:			2.21	2.14	0.012
Yes	113 (34.0)	219 (66.0)	[1.31-3.74]	[1.18-3.87]	
No	21 (18.9)	90 (81.1)			
HIV Disclosure:			3.70	2.61	<0.001
Yes	58 (53.7)	50 (46.3)	[2.32-5.89]	[1.57-4.36]	
No	69 (23.9)	220 (76.1)			
SRH Discussion			0.40	0.93	<0.001
No	72 (44.6)	221 (55.4)	[0.26–0.62]	[0.90-0.96]	
Yes	62 (24.6)	77 (75.4)			
Alcohol Use:			3.06	2.26	0.002
Yes	51 (50.5)	50 (49.5)	[1.91-4.89]	[1.36-3.77]	
No	75 (25.0)	225 (75.0)			
Sexually Experienced:			2.38 [1.56- 3.64]	1.33 [0.79-2.23]	0.291
Yes	62 (43.1)	82 (56.9)			
No	72 (24.1)	227 (75.9)			

**Par. Status* = *Parental Status* [#] *Dec'd/Separated = Deceased/Separated*

4.3 Attitude of Respondents to Sexuality and Gender Issues

The attitude of study respondents to sexual and reproductive health was assessed with a 3-point Likert scale ('agree', 'don't know/not sure', and 'disagree') in four areas, namely: sex before marriage (5 items), gender issues (4 items), condom use (3 items), and high-risk behavior (2 items). This yielded a total of 14 questions. A positive response got a score of +2, a 'don't know/not sure' response got a score of 0, while a negative response got a score of -2. The mean percentage score per respondent for each attitude area was calculated by dividing the sum of scores by the number of items and then multiplying by 100.The maximum score per respondent was 28 and the overall score of a respondent was divided by 28 and multiplied by 100 to get the percentage attitude score.

The mean scores for the different areas of attitude assessed were as follows: premarital sex, 23.0%; gender issues, 28.8%; condom use, 20.0%; high-risk behavior, 32.2%, and overall SRH attitude, 25.4%. Any score below the mean was taken for negative attitude, while a score at or above the mean was taken for a positive attitude. Thus, 196 respondents (50.3%) had a positive attitude to SRH, while 194 (49.7%) had a negative attitude. The effect of sex (male and female) and age group (adolescents [14-24 years] and young adults [20-24 years]) of respondents on attitude to the various areas of SRH were assessed and results presented below.

4.3.1 SRH Attitude of Respondents by Sex

4.3.1.1 Attitude Scores of Respondents by Sex

Males respondents had significantly lower mean scores in the areas of premarital sex (test stat = -3.5985; p <0.001) , gender issues (t-stat = -1.9805; p = 0.048) , high-risk behavior (t-stat = -3.2541; p = 0.001), and overall attitude (t-stat = -2.7432; p = 0.006). They however had a significantly higher score in the area of condom use (t-stat = 3.8852; p <0.001). This is shown in Table 4.22a.

Table 4.22a: Attitude Scores of Respondents by Sex

Aspect of SRH	**% Attitude Scores (**Mean (±SD))			**t-test**	**p**
	Total	**Male**	**Female**		
Premarital Sex	23.0	13.0	32.0	-3.5985	**<0.001**
Gender Issues	28.8	25.0	33.8	-1.9805	**0.048**
Condom Use	20.0	31.7	8.3	3.8852	**<0.001**
High-risk Behaviour	32.5	25.0	42.5	-3.2541	**0.001**
Combined SRH Attitude	25.4	22.1	28.9	-2.7432	**0.006**

4.3.1.2 Proportion of Respondents with Positive and Negative Attitude by Sex

The proportions of male and female respondents with positive and negative attitudes to the different attitude areas assessed as well as overall SRH attitude are detailed in Table 4.22b. Male respondents had significantly lower odds of having a positive attitude to premarital sex (OR = 0.42 [95% CI: 0.28-0.63]; p <0.001), and high-risk behavior (OR = 0.61 [95% CI: 0.41-0.93]; p = 0.020), and significantly higher odds of a positive attitude to condom use (OR = 1.96 [95% CI:1.31-2.95]; p = 0.001). Males also had lower odds of a positive attitude with regards to gender issues and overall attitude but these were not statistically significant.

Table 4.22b: SRH Attitude of Respondents by Sex

Variable	All	Male	Female	OR [95% CI]	p
	n (%)	n (%)	n (%)		
Premarital Sex:				0.42 [0.28-0.63]	**<0.001**
Positive	185 (47.6)	72 (36.9)	113 (58.2)		
Negative	204 (52.4)	123 (63.1)	81 (41.8)		
Gender Issues:				0.74 [0.50-1.12]	0.156
Positive	187 (48.2)	87 (44.6)	100 (51.8)		
Negative	201 (51.8)	108 (55.4)	93 (48.2)		
Condom Use:				1.96 [1.31-2.95]	**0.001**
Positive	210 (54.7)	122 (62.9)	88 (46.3)		
Negative	174 (45.3)	72 (37.1)	102 (53.7)		
High-risk Behaviour:				0.61 [0.41-0.93]	**0.020**
Positive	207 (54.6)	93 (48.7)	114 (60.6)		
Negative	172 (45.4)	98 (51.3)	74 (39.4)		
Overall Attitude:				0.69 [0.46-1.03]	0.068
Positive	196 (50.3)	89 (45.6)	107 (54.9)		
Negative	194 (49.7)	106 (54.4)	88 (45.1)		

4.3.2. SRH Attitude of Respondents by Age Group

4.3.2.1 Attitude Scores of Respondents by Age Group

Young adult respondents had a significantly lower score for premarital sex (t stat = -5.3566; p <0.001), but significantly higher scores for gender issues (t-stat = 2.0932; p = 0.037) and condom use (t-stat = 5.7604; p = 0.000). Although they had lower scores than adolescents with regards to high-risk behavior and overall attitude, these were not statistically significant as shown in Table 4.22c.

Table 4.22c: SRH Attitude Scores by Age Group

Aspect of SRH	**% Attitude Scores** (Mean (±SD))			**t-test**	**p**
	Total	**Young Adult**	**Adolescent**		
Premarital Sex	23.0	3.0	32.0	-5.3566	**<0.001**
Gender Issues	28.8	36.3	26.3	2.0932	**0.037**
Condom Use	20.0	43.3	8.3	5.7604	**<0.001**
High-risk Behaviour	32.5	27.5	35.0	-1.3051	0.193
Combined SRH Attitude	25.4	24.6	25.7	-0.4117	0.680

4.3.2.2 Respondents with Positive and Negative Attitude by Age Group

In consonance with the attitude scores by age group, young adults had lower odds of a positive attitude concerning premarital sex (OR =0.34 [95% CI: 0.22-0.53]), but higher odds of positive attitude with regards to gender issues and condom use (OR = 1.71 [95% CI: 1.12-2.62] and OR = 3.10 [95% CI =1.95-4.91], respectively).

Although they also had lower odds of positive attitude about high-risk behavior and overall attitude, these were not statistically significant as shown in Table 4.22d.

Table 4.22d: SRH Attitude of Respondents by Age Group

Variable	All	Young adult	Adolescent	OR [95% CI]	p
	n (%)	n (%)	n (%)		
Premarital Sex:				0.34 [0.22-0.53]	**<0.001**
Positive	185 (46.8)	39 (30.5)	146 (55.5)		
Negative	206 (53.2)	89 (69.5)	117 (44.5)		
Gender Issues:				1.71 [1.12-2.62]	**0.013**
Positive	187 (48.1)	73 (57.0)	114 (43.3)		
Negative	202 (51.9)	55 (43.0)	147 (56.7)		
Condom Use:				3.10 [1.95-4.91]	**<0.001**
Positive	210 (54.7)	92 (72.4)	118 (45.9)		
Negative	174 (45.3)	35 (27.6)	139 (54.1)		
High-risk Behaviour:				0.79 [0.52-1.22]	0.291
Positive	207 (54.6)	64 (50.8)	143 (56.5)		
Negative	172 (45.4)	62 (49.2)	110 (43.5)		
Overall Attitude:				0.82 [0.54-1.26]	0.370
Positive	197 (50.5)	60 (47.2)	137 (52.1)		
Negative	193 (49.5)	67 (52.8)	126 (47.9)		

4.3.3. Factors Associated with Attitude of Respondents to SRH

A logistic regression of SRH attitude and baseline characteristics, SRH knowledge, and sexual experience was undertaken to determine significant associations with SRH attitude among respondents. This showed that having had CSE (OR= 2.63 [95% CI: 1.41-4.93]), SRH communication with caregivers (OR = 2.78 [95% CI: 1.77-4.35]), and good SRH knowledge (OR= 1.59 [95% CI: 1.03-2.44]), were significantly positively associated with positive SRH attitude. On the other hand, being sexually experienced was significantly negatively associated with positive SRH attitude (OR = 0.50 [95% CI:0.33-0.76]). Having disclosed HIV status yielded higher odds of a positive attitude to SRH but this was not statistically significant. These results are shown in Table 4.22e.

Table 4.22e: Factors Associated with Attitude of Respondents to SRH

Characteristic	SRH Attitude		OR [95% CI]	p
	Positive [196]	**Negative** [194]		
Sex:			0.69 [0.46-1.02]	0.068
Male	89 (45.6)	106 (54.4)		
Female	107 (54.9)	88 (45.1)		
Age Group:			0.82 [0.54-1.26]	0.370
20 – 24	60 (56.4)	67 (43.6)		
14 – 19	137 (52.1)	126 (47.9)		
CSE/FLHE:			2.63 [1.41-4.93]	**0.002**
Yes	165 (53.2)	145 (46.8)		
No	16 (30.2)	37 (69.8)		
Parental Status:			1.09 [0.73-3.11]	0.687
Living together	102 (51.3)	97 (48.7)		
Deceased/Separated	94 (49.2)	97 (50.8)		
SES:			1.18 [0.78-1.77]	0.433
Higher	111 (58.7)	104 (54.7)		
Lower	78 (51.3)	86 (45.3)		
HIV Status Disclosure:			1.43 [0.90-2.28]	0.130
Yes	55 (56.2)	43 (43.8)		
No	125 (47.2)	140 (52.8)		
SRH Communication with Caregivers:			2.78 [1.77-4.35]	**<0.001**
Yes	81 (66.9)	40 (33.1)		
No	112 (43.1)	148 (56.9)		
Alcohol Use:			0.81 [0.51-1.29]	0.371
Yes	44 (46.3)	51 (53.7)		
No	142 (51.6)	133 (48.4)		
SRH Knowledge:			1.59 [1.03-2.44]	**0.035**
Good	72 (58.1)	52 (41.9)		
Poor	124 (46.6)	142 (53.4)		
Sexually Experienced:			0.50 [0.33-0.76]	**0.001**
Yes	54 (27.6)	84 (43.3)		
No	142 (72.3)	110 (56.7)		

4.4 Sexual and Reproductive Health Experience of Respondents

4.4.1: Sexual Experience of Respondents

4.4.1.1 General Sexual Experience of Respondents

About one third of respondents (144, 32.5%) admitted to having had sexual intercourse (33.8% males and 31.2% females). Male respondents had a significantly earlier sexual debut (16.5 [± 3.1] years) than females (17.9 [± 3.4] years) [p = 0.021].

The first sexual encounter was vaginal sex for the majority of respondents (69.9%); however, significantly more males than females had engaged in anal/oral sex (OR = 2.18 [95% CI: 0.10 – 4.76]; p = 0.049). While the first sex was unplanned in about two thirds of cases for both males and females, significantly fewer males regretted the encounter (16.4% versus 37.3%; OR = 0.33 [95% CI: 0.15 - 0.75]; p = 0.006).

The median time of the last sexual intercourse for respondents was 4 weeks prior to the interview, with a range of less than one week to about 10 years. The mean total number of sexual partners was 3.6 (± 3.3) and differed significantly between male and female respondents, being 5.1 (± 4.1) persons in males and 2.5 (±2.0) persons in females (p = 0.006). Male respondents were also significantly more likely to have had five or more sexual partners compared to females (17 [37.8%] versus 7 [13.7%]; p = 0.004). These results are shown in Table 4.23a.

Table 4.23a: Sexual Experience of Respondents

Question	Total	Sex		OR [95% CI]/	p
	n (%)	**Males**	**Females**	t-stat	
		n (%)	n (%)		
Ever had sex:				1.13 [0.76-1.68]	0.558
Yes	144 (32.5)	77 (33.8)	67 (31.2)		
No	299 (67.5)	151 (66.2)	148 (68.8)		
Age at 1st sex:					**0.021**
Mean (±SD) years	17.2 (±3.3)	16.5 (±3.1)	17.9 (±3.4)	t = 2.3453	
Early sexual debut:				2.62 [1.05-6.54]	**0.035**
Yes	27 (22.9)	19 (28.4)	8 (13.1)		
No	91 (77.1)	48 (71.6)	53 (86.9)		
1st sex was:				2.18 [0.10-4.76]	**0.049**
Anal/Oral	41 (30.1)	29 (36.7)	12 (21.1)		
Vaginal	95 (69.9)	50 (63.3)	45 (78.9)		
1st sex planned				0.85 [0.42-1.70]	0.637
No	96 (66.7)	50 (64.9)	46 (68.7)		
Yes	48 (33.3)	27 (35.1)	21 (31.3)		
Regret 1st Sex				0.33 [0.15-0.75]	**0.006**
Yes	34 (25.8)	12 (16.4)	22 (37.3)		
No	98 (74.2)	61 (83.6)	37 (62.7)		
Total number of sex partners				t = 3.1924	**0.002**
Mean (±SD)	3.6 (3.3)	5.1 (±4.1)	2.5 (±2.0)		
Numbers:					
≥ 5	24 (25.0)	17 (37.8)	7 (13.7)	3.82 [1.40-10.37]	**0.004**
< 5	72 (75.0)	28 (62.2)	44 (86.3)		

*Some respondents reported more than one type of sex

Reasons for Regret of First Sexual Encounter

Ten of the 12 male respondents (83.3%) and 16 of the 22 female respondents (72.7%) who regretted their first sexual encounter provided reasons for their regret. For the females, major reasons were being forced/raped (5 [31.3%]), not being ready for sex (4 [25.0%]), and the sexual partner not being worth it (3 [18.8%]). Other reasons were that the sex was not great/safe (12.6%), and that it resulted in pregnancy (6.3%). For the males, the major reason was that the sex was not great (5 [50.0%]). Other reasons included being too young (10.0%), pressured (10.0%), and the partner being too talkative (10.0%).

4.4.1.2. Factors Associated with Sexual Experience in Respondents

Assessment of factors associated with being sexually experienced among respondents showed that being a young adult (OR = 6.45 [95% CI: 4.15 – 10.00), with deceased or separated parents (OR =1.52 [95% CI:1.01-2.26]), out of school (OR = 2.71 [95% CI: 1.80 – 4.08]), and having a good SRH knowledge (OR = 2.38 [95% CI: 1.56 – 3.64]) were all significantly positively associated with being sexually experienced. On the other hand, having a positive SRH attitude was significantly negatively associated with sexual experience (OR = 0.50 [95% CI: 0.33-0.76]. The sex of respondent, communication of SRH matters with parents/caregivers, socio-economic status, and having received CSE had no significant association with sexual experience of respondents. These findings are shown in Table 4.23b.

Table 4.23b: Factors Associated with Sexual Experience in Respondents

Characteristic	Sexually Experienced		OR [95% CI]	P
	Yes	No		
Age Groups (years):			6.45 [4.15-10.00]	**<0.001**
20-24	89 (61.8)	60 (20.1)		
14-19	55 (38.2)	239 (79.9)		
Sex:			1.13 [0.76-1.68]	0.558
Male	77 (53.5)	151 (50.5)		
Female	67 (46.5)	148 (49.5)		
Parental Status:			1.52 [1.01-2.26]	**0.041**
Deceased/Separated	79 (54.9)	133 (44.5)		
Living together	65 (43.1)	166 (55.5)		
SES:			0.97 [0.65-1.45]	0.875
Higher	81 (56.6)	166 57.4)		
Lower	62 (43.4)	123 (42.6)		
Education:			2.71 [1.80-4.08]	**<0.001**
Out-of-School	79 (54.9)	92 (31.0)		
In school	65 (43.1)	205 (69.0)		
Had CSE:			1.41 [0.88 – 2.27]	0.155
Yes	114 (79.2)	218 (72.9)		
No	30 (20.8)	81 (27.1)		
SRH communication			0.85 [0.55-1.31]	0.459
Yes	42 (29.9)	97 (33.3)		
No	99 (70.1)	194 (66.7)		
SRH Knowledge:			2.38 [1.56 – 3.64]	**<0.001**
Good	62 (44.0)	72 (24.1)		
Poor	82 (56.0)	227 (75.9)		
SRH Attitude:			0.50 [0.33-0.76]	**0.001**
Positive	54 (39.1)	142 (56.3)		
Negative	84 (60.9)	110 (43.7)		

4.4.1.3. Early Sexual Debut among Respondents

Twenty-seven respondents (21.1%) had experienced early sexual debut, i.e., coitarche before age 15 years (19 males [28.4%] and eight females [13.1%]). Factors significantly positively associated with early sexual debut were male sex (OR = 2.62 [95% CI: 1.05-6.54]), sexual abuse (OR = 4.80 [95% CI: 1.77-13.10]), and intimate partner violence (OR = 3.12 [95% CI: 1.12-8.65]).

Respondents with early sexual debut also had higher odds of not having received CSE (OR = 2.11 [95% CI: 0.79-6.54]), poor SRH knowledge (OR = 2.39 [95% CI: 0.93-6.15), not engaging in SRH communication with caregivers (OR = 1.83 [95% CI: 0.63-5.30]), being from higher socio-economic status (OR = 1.57 [95% CI: 0.64-3.84]). The high-risk sexual behavior of one-night stands (OR = 1.23 [95% CI: 0.44-3,47]) and transactional sex (OR = 1.94 [95% CI: 0.74-5.12]) were positively associated with early sexual debut, as was the adverse SRH outcome of unwanted pregnancy (OR = 1.35 [95% CI: 0.47-3.82]). These associations were, however, not statistically significant as shown in Table 4.24.

Table 4.24: Factors associated with Early Sexual Debut among Respondents

Variable	All (128)	Early Sexual Debut		OR [95% CI]	p
		Yes (27)	No (101)		
Sex:				2.62 [1.05-6.54]	**0.035**
Male	67 (52.3)	19 (70.4)	48 (47.5)		
Female	61 (47.7)	8 (29.6)	53 (52.5)		
Parental Status:				1.25 [0.53-2.94]	0.604
Together	56 (43.8)	13 (48.1)	43 (42.6)		
Deceased/Separated	72 (56.2)	14 (51.9)	58 (57.4)		
SES				1.57 [0.64-3.84]	0.319
Higher	74 (57.8)	18 (66.7)	56 (56.0)		
Lower	53 (42.2)	9 (33.3)	44 (44.0)		
CSE:				2.11 [0.79-5.63]	0.087
No	24 (19.5)	8 (29.6)	16 (16.7)		
Yes	99 (80.5)	19 (70.4)	80 (83.3)		
SRH Communication:				1.83 [0.63-5.30	0.263
No	90 (72.0)	21 (80.8)	69 (69.7)		
Yes	35 (28.0)	5 (19.2)	30 (30.3)		
Sexual Abuse:				4.81 [1.77-13.10]	**0.001**
Yes	21 (16.4)	10 (37.0)	11 (10.9)		
No	107 (83.6)	17 (63.0)	90 (90.1)		
IPV:				3.12 [1.12-8.68]	**0.024**
Yes	20 (15.6)	8 (29.6)	12 (11.9)		
No	108 (84.4)	19 (70.4)	89 (88.1)		
One-night Stand				1.23 [0.44-3.47]	0.691
Yes	25 (19.5)	6 (22.2)	19 (18.8)		
No	103 (80.5)	21 (77.8)	82 (81.2)		
Transactional Sex:				1.94 [0.74-5.12]	0.176
Yes	26 (20.3)	8 (29.6)	18 (17.8)		
No	102 (79.7)	19 (70.4)	83 (82.2)		
Unwanted Pregnancy:				1.41 [0.46-4.34]	0.545
Yes	19 (14.8)	5 (18.5)	14 (13.9)		
No	109 (85.2)	22 (81.5)	87 (86.1)		

4.4.1.4. Sexual Violence Experience of Respondents and Associated Factors

Almost one quarter of sexually experienced respondents who responded to the question of sexual abuse (27 of 119, [22.7%]) admitted to having suffered 38 episodes of sexual abuse. While the majority were abused only once, a male respondent reported 5 episodes of abuse by strangers, and a female respondent reported 4 episodes of abuse by a known older male. Male respondents were two times less likely to experience sexual abuse than females but this was not statistically significant (OR = 0.45 [95% CI: 0.20 – 1.05]; p = 0.060). The age group of respondents also had no significant relationship with experience of sexual abuse. The majority of perpetrators were people known to the victims (76.2% for females and 58.8% for males). Known perpetrators were relatives, friends and neighbours. Males were more than two times more likely to be abused by strangers than females (OR =2.10 [95% CI: 0.52-8.51]; p = 0.295), as shown in table 4.25a.

Table 4.25a: Respondents' Experience of Sexual Abuse

Question	**N (%)**
Ever been forced to have sex (119)**:**	
Yes	27 (22.7)
No	92 (77.3)
Number of times Abused (24):	
Once	16 (66.7)
More than once (2-5)	8 (33.3)
Perpetrator of Abuse (37):	
Stranger	12 (31.6)
Known Person	25 (68.4)

Sexual abuse was positively associated with female sex (OR = 2.21 [95% CI: 0.91-5.35]), adolescent age group (OR = 2.23 [95% CI: 0.93-5.32]), deceased/separated parents (OR = 1.91 [95% CI: 0.78-4.70]), no CSE (OR = 1.23 [95% CI: 0.243-3.50]), and poor SRH knowledge (OR = 1.45 [95% CI: 0.61-3.47]). It was also positively associated with other negative SRH experiences like transactional sex (OR = 1.33 [95% CI: 0.46-3.90]) and unwanted pregnancy (OR = 2.41 [95% CI: 0.81-7.17]). These associations did not reach the level of statistical significance. These findings are shown in Table 4.25b.

Table 4.25b: Factors associated with Respondents' Experience of Sexual Abuse

Variable	All (119)	Sexual Abuse		OR [95% CI]	p
		Yes (27)	No (92)		
Sex:				2.21 [0.91-5.35]	0.075
Female	57 (47.9)	17 (63.0)	40 (43.5)		
Male	62 (52.1)	10 (37.0)	52 (56.5)		
Age Group:				2.23 [0.93-5.32]	0.069
Adolescent	44 (37.0)	14 (51.6)	30 (32.6)		
Young adult	75 (63.0)	13 (48.4)	62 (67.4)		
Parental Status:				1.91 [0.78-4.70]	0.153
Separated/Deceased	65 (54.6)	18 (66.7)	47 (51.1)		
Together	54 (45.4)	9 (33.3)	45 (48.9)		
Economic Status:				1.09 [0.46-2.61]	0.845
Higher	68 (57.6)	16 (59.3)	52 (57.1)		
Lower	50 (42.4)	11 (40.7)	39 (42.9)		
CSE:				1.23 [0.243-3.50]	0.698
No	25 (21.2)	6 (24.0)	19 (20.4)		
Yes	93 (78.8)	19 (76.0)	74 (79.6)		
SRH Communication:				1.44 [0.56-3.70]	0.442
Yes	36 (31.0)	9 (37.5)	27 (29.3)		
No	80 (69.0)	15 (62.5)	65 (70.7)		
SRH Knowledge				1.45 [0.61-3.47]	0.397
Poor	62 (52.1)	16 (59.3)	46 (50.0)		
Good	57 (47.9)	11 (40.7)	46 (50.0)		
IPV*:				1.10 [0.39-3.10]	0.860
Yes	25 (21.0)	6 (22.2)	19 (20.9)		
No	94 (79.0)	21 (77.8)	73 (79.1)		
Transactional Sex:				1.33 [0.46-3.90]	0.599
Yes	24 (23.1)	6 (27.3)	18 (22.0)		
No	80 (76.9)	16 (72.7)	64 (88.0)		
Unwanted Pregnancy:				2.41 [0.81-7.17]	0.107
Yes	22 (22.9)	7 (36.8)	15 (19.5)		
No	74 (77.1)	12 (63.2)	62 (80.5)		

**IPV = Intimate Partner Violence*

4.4.1.5. Respondents' Experience of High-Risk Sexual Behaviour

The high-risk sexual behaviour assessed in this study were inconsistent condom use, transactional sex, one-night stands or hook up (sexual relationship lasting only one night with someone one just met), and having multiple sexual partners (≥2 partners concurrently or sequentially). A similar proportion of just more than half of male and female respondents admitted to inconsistent condom use. However significantly more males admitted to transactional sex (36.7% versus 8.9%), multiple sexual partners (68.5% versus 36.4%) and one-night stands (39.7% versus 10.0%), as shown in Table 4.26.

Table 4.26: Experience of High-risk Sexual Behavior among Respondents

Question	**All**	**Males**	**Females**	**OR** [95% CI]	**p**
	n (%)	n (%)	n (%)		
Inconsistent Condom Use:				1.07 [0.53-2.19]	0.845
Yes	65 (52.9)	37 (53.6)	28 (51.8)		
No	58 (47.1)	32 (46.4)	26 (48.2)		
Ever had transactional sex				5.91 [2.05-17.01]	**<0.001**
Yes	27 (23.3)	22 (36.7)	5 (8.9)		
No	89 (76.7)	38 (63. 3)	51 (91.1)		
Multiple Sex Partners				3.60 [1.64-7.90]	**<0.001**
Yes	57 (51.8)	37 (68.5)	20 (36.4)		
No	53 (48.2)	18 (31.5)	35 (63.6)		
Ever had a one-night stand				5.91 [2.04-17.13]	**<0.001**
Yes	28 (25.9)	23 (39.7)	5 (10.0)		
No	80 (74.1)	35 (60. 3)	45 (90.0)		

4.4.2 Contraceptive Use Experience of Respondents

About two thirds of respondents (64.9%) admitted to using contraceptives at their first sexual encounter. However less than half of respondents (47.1%) consistently used contraception in subsequent sexual encounters. These proportions were similar in male and female respondents. The commonest contraceptive method was the male condom at all times, being 83.7% at first sex and 68.4% at subsequent sex. Males were more likely to use condoms at first and subsequent sex but this was only statistically significant at subsequent sex (2.30 [1.04 – 5.07]; p = 0.037). Other contraceptive methods employed included the oral contraceptive pill [OCP] (11.8%), withdrawal (11.8%), safe period (5.0%) and emergency contraception (3.4%). No respondent used any long-acting reversible contraception.

Respondents reported high contraceptive use for high-risk sex (one-night stands and transactional sex); males were two times more likely to consistently use contraception during transactional sex than females (OR =2.17 [95% CI: 0.53-8.93]). The reported use of contraception at the last sexual encounter was also high at 66.7% and the main method remained the condom (84.1%). However, these results show that a third to about half of respondents did not use any contraception during sexual intercourse predisposing them to risk of sexually transmitted infections and unplanned pregnancies with their associated adverse sequelae. There was no report of use of any long-acting reversible contraceptive method (implant and IUD) or even injectable contraceptive in this study.

Contraceptives were majorly obtained from pharmacies (62.8%); other sources were clinics (16.0%), shops (12.8%), and friends (8.5%). These findings are shown in Table 4.27.

Table 4.27: **Contraceptive Experience of Respondents**

Item	All n (%)	Males n (%)	Females n (%)	OR [95% CI]	p
Contraceptive at First Sex:				1.13	0.732
Yes	85 (64.9)	47 (66.2)	38 (63.3)	[0.55-2.33]	
No	46 (35.1)	24 (33.8)	22 (36.7)		
Method at First Sex:				3.33 [0.93-11.93]	0.071*
Condom	67 (83.7)	40 (90.9)	27 (75.0)		
Other	13 (16.3)	4 (9.1)	9 (25.0)		
Subsequent Contraceptive Use:				1.01 [0.49-2.08]	0.971
Always	58 (47.1)	32 (46.4)	26 (48.2)		
Sometimes/Never	65 (52.9)	37 (53.6)	28 (51.8)		
Method at Subsequent Sex:				2.30 [1.04-5.07]	**0.037**
Condom	80 (68.4)	48 (76.2)	32 (58.2)		
Others	37 (31.6)	15 (23.8)	23 (41.8)		
Contraceptive Use High-risk Sex				2.17 [0.53-8.93]	0.278
Always	31 (64.6)	26 (68.4)	5 (50)		
Sometimes/Never	17 (35.4)	12 (31.6)	5 (50)		
Contraceptive at last Sex:				1.12	0.784
Yes	72 (66.7)	40 (67.8)	32 (65.3)	[0.50-2.50]	
No	36 (33.3)	19 (32.2)	17 (34.7)		
Method at Last Sex:				0.75 [0.20-2.86]	0.750
Condom	58 (84.1)	33 (82.5)	25 (86.2)		
Others	11 (15.9)	7 (17.5)	4 (13.8)		

**Fisher Exact Test*

4.4.3 Sexually Transmitted Infection Experience of Respondents

About three fifths of respondents admitted to ever being concerned about getting an STI, and with about 80% of concerned respondents taking preventive action to avert an STI, this translates to less than half of sexually active respondents taking any action to prevent an STI. While 28 of 30 males (93.3%) used a condom for STI prevention, only 18 of 28 females (64.3%) used a condom. Five females (17.9%) washed their genital area immediately after the sexual encounter, and the remaining five (17.9%) used an unspecified preventive medicine. One male (3.3%) used unspecified preventive medicine and the other (3.3%) washed his genital area after sex.

Twenty-one sexually experienced respondents (14.6%) reported having had a sexually transmitted infection, amounting to 4.7% of the study population. The commonest STI was gonorrhea (50.0%), followed by chlamydia (13.3%), herpes (13.3%), and others (26.4%). Three quarters of the gonorrhea was reported in males. The majority of respondents (73.7%) had had only one episode of STI, and while 91.3% admitted to receiving treatment for the infection (majorly from a government or private hospital or clinic), only about half of respondents knew whether their sexual partner also received treatment. There was no significant difference between males and females in all parameters relating to sexually transmitted infection.

With regard to factors associated with STI experience of respondents, only young adults had significantly higher odds of having had an STI (OR = 7.19 [95% CI: 1.60-65.71]. While higher SES, being in school, having had no CSE lessons, HIV status disclosure and good SRH knowledge were all positively associated with STI

experience among respondents, these differences did not reach the level of statistical significance as shown in Table 4.28.

Table 4.28: Factors associated with Sexually Transmitted Infection Experience

Variable	**Ever had an STI**		**OR** [95% CI]	**p**
	Yes (21)	**No** (123)		
Sex:			0.95 [0.38-2.40]	0.914
Male	11 (52.4)	66 (53.7)		
Female	10 (47.6)	57 (46.3)		
Age Group (years):			7.19 [1.60-65.71]	**0.003***
20-24	19 (90.5)	70 (56.9)		
14-19	2 (9.5)	53 (43.1)		
SES:			1.08 [0.39-3.00]	0.887
Higher	11 (61.1)	73 (59.3)		
Lower	7 (38.9)	50 (40.7)		
School Status:			2.22 [0.86-5.74]	0.095
In school	13 (61.9)	52 (42.3)		
Out of School	8 (38.1)	71 (57.7)		
Had CSE:			1.50 [0.49-4.56]	0.473
No	5 (25.0)	22 (18.2)		
Yes	15 (75.0)	99 (81.8)		
HIV status Disclosure:			1.79 [0.67-4.78]	0.242
Yes	14 (66.7)	57 (52.8)		
No	7 (33.3)	51 (47.2)		
SRH Discussion:			1.21 [0.45-3.26]	0.700
Yes	7 (33.3)	35 (29.2)		
No	14 (66.7)	85 (70.8)		
SRH Knowledge:			2.45 [0.95-6.36]	0.059
Good	13 (61.9)	49 (39.8)		
Poor	8 (38.1)	74 (60.2)		

**Fisher Exact Test*

4.4.4 Pregnancy Experience of Respondents

4.4.4.1 Pregnancy Experience of Respondents

Of 108 sexually-experienced participants who responded to the question of "ever been or got someone pregnant", 24 (22.2%) had a positive response (17 [36.2%] females and 7 [11.5%] males). This resulted in 30 pregnancies, 26 (86.7%) of which were unintended and not wanted. Of these unintended pregnancies, 16 (61.5%) were terminated, 5 (19.2%) resulted in a live birth with one early neonatal death, 4 (15.4%) were still ongoing and the fate of the last one was unknown. Most (87.5%) of the abortions took place outside a health facility. While female respondents were significantly more likely to get pregnant (p=0.002), unwanted pregnancies associated with male respondents were more than two times more likely to be unwanted (OR=2.20 [95% CI: 0.15 – 125.83]), and to result in an abortion (OR=2.33 [95% CI: 0.35 – 18.61]). These differences were not statistically significant. Among the four wanted pregnancies, 50% ended in a miscarriage and 50% in a live birth in a health facility. These results are shown in Table 4.29a.

Table 4.29a: Pregnancy Experience of Respondents

Question	All	Males	Females	OR	p
	n (%)	n (%)	n (%)	[95% CI]	
Ever Been/Got Someone Pregnant:				0.23 [0.09-0.61]	0.002
Yes	24 (22.2)	7 (11.5)	17 (36.2)		
No	84 (77.8)	54 (88.5)	30 (65.8)		
Number of Pregnancies	30 (100)	12 (40.0)	18 (60.0)		
Pregnancy was:				2.20 [0.15-125.83]	0.631*
Unintended	26 (86.7)	11 (91.7)	15 (83.3)		
Intended	4 (13.3)	1 (8.3)	3 (16.7)		
Outcome of Unintended Pregnancy:				2.33 [0.35-18.61]	0.428*
Abortion	16 (61.5)	8 (72.7)	8 (53.3)		
Other:	10 (38.5)	3 (27.3)	7 (46.7)		
Pregnant	*4 (15.4)*	*1 (9.1)*	*3 (20.0)*		
Birth	*5 (19.2)*	*1 (9.1)*	*4 (26.7)*		
Unsure	*1 (3.9)*	*1 (9.1)*	*0 (0.0)*		
Abortion Place:				1.00 [0.01-89.58]	1.000*
Clinic	2 (12.5)	1 (12.5)	1 (12.5)		
Other	14 (87.5)	7 (87.5)	7 (87.5)		
Birth Place:					
Health Facility	4 (80.0)	1 (100.0)	3 (75.0)		
Home	1 (20.0)	0 (0.0)	1 (25.0)		

4.4.4.2 Factors associated with Pregnancy Experience of Respondents

Pregnancy experience of respondents was positively associated with being female, having deceased or separated parents, lower socio-economic status, being out of school, having had no CSE, no HIV status disclosure, communication of SRH with caregivers, poor SRH knowledge, and negative SRH attitude, with the highest odds being for female sex (OR = 4.37 [95% CI: 1.63-11.73]), parental status (OR= 2.0 [95% CI: 0.77-5.17]), and no CSE (OR=2.06 [0.72-5.89]). Only the difference between the sexes was statistically significant as shown in Table 4.29b.

Table 4.29b: Factors Associated with Unintended Pregnancy

Variable	Pregnancy		OR [95% CI]	p
	Yes (24)	**No** (84)		
Sex:			4.37 [1.63-11.73]	**0.002**
Female	17 (70.8)	30 (35.7)		
Male	7 (29.2)	54 (64.3)		
Parental Status:			2.0 [0.77-5.17]	0.149
Deceased/Separated	16 (66.7)	42 (50.0)		
Together	8 (33.3)	42 (50.0)		
SES:			1.77 [0.70-4.49]	0.224
Lower	12 (52.2)	32 (38.1)		
Higher	11 (47.8)	52 (61.9)		
School Status:			1.33 [0.53-3.34]	0.586
Out of School	14 (58.3)	43 (51.2)		
In school	10 (41.7)	41 (48.8)		
Had CSE:			2.06 [0.72-5.89]	0.172
No	7 (29.2)	14 (16.7)		
Yes	17 (70.8)	70 (83.3)		
HIV status Disclosure:			1.31 [0.49-3.49]	0.586
No	14 (63.6)	44 (57.1)		
Yes	8 (36.4)	33 (42.9)		
SRH Communication:			1.69 [0.66-4.30]	0.272
Yes	10 (41.7)	25 (29.8)		
No	14 (58.3)	59 (70.2)		
SRH Knowledge:			1.67 [0.66-4.23]	0.279
Poor	15 (62.5)	42 (50.0)		
Good	9 (37.5)	42 (50.0)		
SRH Attitude:			1.24 [0.47-3.25]	0.665
Negative	15 (65.2)	50 (60.2)		
Positive	8 (34.8)	33 (39.8)		

4.4.5 Intimate Partner Violence (IPV) Experience of Respondents and its Correlates

4.4.5.1 General Aspects of IPV among Respondents

Experience of intimate partner violence (IPV), the forms of IPV experienced, and how many forms each victim endured were assessed among sexually experienced respondents. The different forms of IPV were verbal abuse (insults and threat to hurt), emotional violence (humiliation and withholding of affection), and physical violence (hitting, slapping, kicking etc.).

Results showed that 12 males (15.6%) and 14 females (20.9%) had experienced intimate partner violence (IPV), giving a total IPV rate of 18.1% among respondents. Most of the affected respondents (84.6%) experienced emotional abuse. While a higher proportion of females (92.9%) than males (75.0%) experienced emotional violence, this was not statistically significant ($p = 0.306$). Half of affected respondents (58.3% males and 42.9% females) experienced verbal abuse, while the least common form of IPV was physical violence; the difference between males and females was also not statistically significant.

The majority of affected respondents (57.7%) experienced two forms of IPV, while about one third (30.8%) experienced two forms, and 11.5% experienced all three forms of IPV. The perpetrators of IPV were ex-boyfriends/girlfriends in two thirds of cases for both male and female respondents. It is worthy of note that no formal report to any law enforcement agency was made regarding these incidents of violence. However, 5 of 14 females (35.7%) and one of 12 males (8.3%) made informal reports to friends and relatives, resulting in informal counselling to settle the matter. Only four of the victims of IPPV (15.4%) remain with the abusive partner, because they

love them (50%), for satisfaction of sexual needs (25.0%), and because the perpetrator had promised to change. The details of IPV experience of respondents are shown in Table 4.30a.

Table 4.30a: Intimate Partner Violence Experience by Gender of Respondents

Question	All	Males	Females
	n (%)	n (%)	n (%)
Ever experienced IPV:			
Yes	26 (18.1)	12 (15.6)	14 (20.9)
No/No Response	118 (81.9)	65 (84.3)	53 (79.1)
Types of IPV experienced[#]:			
Emotional	22 (84.6)	9 (75.0)	13 (92.9)
Verbal	13 (50.0)	7 (58.3)	6 (42.9)
Physical	12 (46.2)	6 (50.0)	6 (42.9)
Perpetrator of violence (15)**:**			
Ex-Partner	9 (60.0)	3 (50.0)	6 (66.7)
Current Partner	6 (40.0)	3 (50.0)	3 (33.3)
Report of IPV:			
Informal Report (friends/relatives)	6 (23.1)	1 (8.3)	5 (35.7)
No Report	20 (76.9)	11 (91.7)	9 (65.0)
Still with violent partner:			
Yes	4 (15.4)	2 (16.7)	2 (14.3)
No	22 (84.6)	10 (83.3)	12 (85.7)

[#]*Some respondents experienced more than one form of IPV*

4.4.5.2 Factors Associated with IPV

Of the various factors that could be associated with IPV, such as sex, age group and parental status of respondents, a similar proportion of about half of male and female sexually experienced respondents had been victims of IPV. On the contrary, being aged 14-19 years was significantly associated with suffering IPV ($p = 0.024$). Parental status, whether in school or out of school and level of SRH knowledge were not significantly associated with IPV as shown in Table 4.30b.

Table 4.30b: Factors Associated with IPV

Characteristic	All (sexually Experienced)	IPV Experience Yes	No	OR [95% CI]	p
Sex:				0.70 [0.30-1.64]	0.409
Male	77 (48.0)	12 (46.1)	65 (55.1)		
Female	67 (52.0)	14 (53.9)	53 (44.9)		
Age Group (years):				2.66 [1.12-6.32]	0.024
14 -19	55 (38.2)	15 (57.7)	40 (33.9)		
20 – 24	89 (61.8)	11 (42.3)	78 (66.1)		
Parental Status:				1.27 [0.54-2.97]	0.582
Together	65 (46.6)	13 (50.0)	52 (44.1)		
Deceased/Separated	79 (53.4)	13 (50.0)	66 (55.9)		
SRH Communication				0.87 [0.34-2.26]	0.781
Yes	42 (29.2)	7 (26.9)	35 (29.7)		
No	102 (70.8)	19 (73.1)	83 (70.3)		
School Status:				1.53 [0.65-3.60]	0.324
In school	65 (45.1)	14 (53.8)	51 (43.2)		
Out of School	79 (54.9)	12 (46.2)	67 (56.8)		
CSE				2.27 [0.61-12.67]	0.286*
Yes	114 (79.2)	23 (88.5)	91 (77.1)		
No	30 (20.8)	3 (11.5)	27 (22.9)		
SRH Knowledge:				0.96 [0.41 – 2.27]	0.932
Good	62 (43.1)	11 (42.3)	51 (43.2)		
Poor	82 (56.9)	15 (57.7)	67 (56.8)		

4.4.6 Menstruation Experience of Female Respondents

Of the 215 female respondents, most (195 [90.7%]) had attained menarche. The mean age at menarche was 13.3 (±2.3) years and, for the majority of respondents, the duration of menstruation was 3-5 days (71.3%), and the menstrual cycle was 21-35 days (77.4%). Although majority of the respondents (88.2%) learnt about menstruation before menarche, more than 10% of respondents only learnt about menstruation after the onset of menstruation. This is shown in Table 4.31a.

Table 4.31a: Menstruation Experience of Female Respondents

Item	n (%)/Mean (SD)
Onset of Menstruation:	
Yes	195 (90.7)
No/No response	20 (9.3)
Age at Menarche (years):	
Mean (±SD)	13.3 (±2.3)
Duration of Menstruation:	
<3 days	34 (17.4)
3-5 days	139 (71.3)
>5 days	22 (11.3)
Duration of Menstrual Cycle:	
<21 days	38 (19.5)
21-35 days	151 (77.4)
>35 days	6 (3.1)
Menstruation Knowledge:	
Good	155 (79.5)
Poor	40 (20.5)
Learnt of Menstruation:	
Before Menarche	172 (88.2)
After Menarche	23 (11.8)

4.4.6.1 Menstrual Hygiene among Respondents by Age Group

Menstrual hygiene practices were compared between the teenage (14 -19 years) and young adult (20 - 24 years) respondents. Most respondents (94.9%) used the sanitary pad for their menstrual flow. Other products used were tissue paper (8.2%), cloth (7.2%), tampon (3.6%), and cotton wool (2.1%). There were no statistically significant differences between the age groups with regard to materials used for the menstrual flow. No respondent used a menstrual cup for their menstruation.

The choice of menstrual materials was determined majorly by the properties of the material itself (how well it absorbed the menstrual flow, how comfortable it felt, causing no irritation, and preventing odour) [72.2% and 84.1% in teenagers and young adults respectively].

Disposal of menstrual materials after use was majorly into the dustbin or burnt (73.0% for teenagers and 76.8% for young adults). Other methods of disposal included in the toilet and in the bush. Less than 5% are washed for reuse in both age groups. Parents/caregivers (69.08%) are the major providers of menstrual materials for teenagers, while pocket money/personal income (58.2%) constitute the major source of funds for the purchase of menstrual materials for young adults. This difference was statistically significant ($p = 0.002$). Boyfriends/partners constituted less than 10% of source of menstrual materials for respondents.

Menstrual hygiene was assessed by the how many times the menstrual material was changed per day and whether the respondents bathed more, or less during menstrual days than on other days. Findings showed that majority of respondents changed the menstrual material at least 3 times per day, and although teenagers were about one

and a half times more likely to change at least three times/day (65.5% versus 55.8%), this failed to reach the level of statistical significance. Majority of respondents (74.4%), with no significant difference between the two groups.

A menstrual hygiene practice (MHP) score was computed for each respondent from the menstrual material used, number of menstrual material changes per day, number of baths per day and disposal of menstrual material. A score of one was given for each item if the answer was safe and hygienic, and zero if the answer was not. Using sanitary pad or tampon was considered safe and hygienic, as was changing menstrual material at least 3 times/day, bathing more often during menses with soap, and discarding the used menstrual material by wrapping and throwing in the dustbin or burning it[3]. Throwing into the toilet was not hygienic because toilet facilities used by respondents was the water closet and the menstrual material would clog up the system. Individual scores were added up and divided by 4 and then multiplied by hundred to get the percent MHP score per respondent. A score of ≥75.0% was regarded as good menstrual hygiene while a score <75.0% was regarded as poor menstrual hygiene.

Results showed a mean MHP score of 75.3% (±23.3) for all respondents, and about three quarters of respondents getting a score of ≥75%, with no significant difference between the two groups This is also shown in Table 4.31b.

Table 4.31b: Menstrual Hygiene Practice among Respondents by Age Group

Item	All n (%)	14-19 years n (%)	20-24 years n (%)	OR [95% CI]	p
Menstrual Material*:				0.88 [0.43-1.83]	0.734
Sanitary Pad	185 (94.9)	118 (93.7)	67 (97.1)		
Others	41 (21.0)	28 (22.2)	13 (18.8)		
Reason for Choice of Menstrual Material:				0.46 [0.19-1.12]	0.080
Material Properties	163 (83.6)	101 (80.1)	62 (89.9)		
What is Provided	32 (16.4)	25 (19.8)	7 (10.1)		
Menstrual Material Procurement*:				3.16 [1.49-6.69]	**0.002**
Parents/Pocket money	183 (61.0)	126 (69.8)	57 (44.9)		
Other	34 (32.8)	14 (30.2)	20 (37.7)		
Menses Material Disposal*:				0.72 [0.38-1.37]	0.311
Dustbin/Burn it	147 (52.8)	92 (50.8)	55 (56.5)		
Others	60 (22.6)	42 (22.2)	18 (23.2)		
Menstrual Material Changes/Day:				1.48 [0.81-2.71]	0.197
≥ 3 times	122 (62.6)	83 (65.9)	39 (56.5)		
< 3 times	73 (37.4)	43 (34.1)	30 (43.5)		
Baths/day during menstruation:				0.64 [0.32-1.28]	0.205
More than usual	145 (74.4)	90 (71.4)	55 (79.7)		
Same as/less than usual	50 (25.6)	36 (28.6)	14 (20.3)		
MHP Score				-0.9720	0.332
Mean (SD)	75.3 (23.3)	74.6 (24.3)	77.9 (21.3)		
Score Groups:					
≥75%	142 (72.8)	89 (70.6)	53 (76.8)	0.73 [0.37-1.43]	0.354
<75%	53 (27.2)	37 (29.4)	16 (23.2)		

**Some respondents ticked more than one option*

4.4.6.2 Factors Associated with Good Menstrual Hygiene Practice

Assessing the factors associated with good menstrual hygiene practice showed that only Christian religion (OR = 2.27 [95% CI: 1.04-4.93]; p = 0.035) and knowledge of menstruation before menarche (OR = 2.45 [95% CI: 1.03-5.93]; p = 0.039) were significantly associated with good MHP. There was no statistically significant difference in the proportions with and without good menstrual hygiene practice for age group, parental status, discussion of SRH with parents/caregivers, and menstruation knowledge for the respondents (P >0.05) as depicted in table 4.31c.

Table 4.31c. Factors Associated with Good Menstrual Hygiene Practice

Variable	All (195)	**MHP**		**OR** [95% CI]	**P**
		Good (142)	**Poor** (53)		
Age				0.73 [0.37-1.43]	0.354
14-19	126 (64.6)	89 (62.7)	37 (69.8)		
20-24	69 (35.4)	53 (37.3)	16 (30.2)		
Parental Stat				1.38 [0.73-2.60]	0.319
Living Together	96 (49.2)	73 (51.4)	23 (43.4)		
Deceased/Separated	99 (50.8)	69 (48.6)	30 (56.6)		
Family Structure				0.94 [0.50-1.78]	0.854
Nuclear	103 (53.6)	74 (53.2)	29 (54.7)		
Other	89 (46.4)	65 (46.8)	24 (45.3)		
SRH Communication				1.02 [0.53-1.95]	0.954
Yes	79 (40.7)	58 (40.8)	21 (40.4)		
No	115 (59.3)	84 (59.2)	31 (59.6)		
Knew of Menses Before Menarche				2.45 [1.03-5.93]	**0.039**
Yes	145 (85.3)	110 (89.5)	35 (76.1)		
No	25 (14.7)	14 (10.5)	11 (23.9)		
Menstruation Knowledge:				1.02 [0.47-2.22]	0.959
Good	155 (79.5)	113 (79.6)	42 (79.2)		
Poor	40 (20.5)	29 (20.4)	11 (20.8)		

4.4.6.3 Experience of Dysmenorrhoea among Respondents

Dysmenorrhoea was quite prevalent among respondents (80.0%) and although a higher proportion of young women had experienced dysmenorrhea (85.5% versus 77.0%), this was not statistically significant (p = 0.155). There was a positive history of dysmenorrhea in just under one third of both age groups with dysmenorrhea, and the commonest symptom of dysmenorrhea was abdominal cramps just before and/or during the menstrual period (57.9% and 59.4% in adolescent girls and young women respectively; p = 0.803). Other common symptoms included breast tenderness, irritability, malaise, development of pimples, and body pains. A lower proportion of adolescent girls experienced all symptoms of dymenorrhoea but the difference was significant only for breast tenderness (OR = 0.35 [95% CI: 0.17 – 0.69]; p = 0.002) and irritability (OR =0.41 [0.21 -0.82]; p = 0.010). Majority of adolescent girls (57.7%) and young women (47.5%) sought help/treatment for dysmenorrhea from parents/caregivers. Other sources of help were friends, teachers, healthcare workers and the internet. There was no significant difference between the two groups of respondents concerning these sources of help/treatment for dysmenorrhea. Some of these results are shown in Table 4.31d.

Table 4.31d: Dysmenorrhoea Experience of Respondents by Age Group

Item	All n (%)	14-19 years n (%)	20-24 years n (%)
Any Dysmenorrhoea:			
Yes	156 (80.0)	97 (77.0)	59 (85.5)
No	39 (20.0)	29 (23.0)	10 (14.5)
Positive Family History			
Yes	47 (30.1)	29 (29.9)	18 (30.5)
No/Don't know	109 (69.9)	68 (70.1)	41 (69.5)
Symptoms*:			
Abdominal cramps	114 (73.1)	73 (75.3)	41 (69.5)
Feeling irritable	51 (32.7)	25 (25.8)	26 (44.1)
Breast enlargement/pain	50 (32.1)	23 (23.7)	27 (45.8)
Headache/Body pains	43 (27.6)	27 (27.8)	16 (27.1)
Pimples	57 (36.6)	35 (36.1)	22 (37.3)
Anorexia/malaise	46 (29.5)	25 (25.8)	21 (35.6)
Feeling bloated	25 (16.0)	13 (13.4)	12 (20.3)
From whom help sought:			
Parents/Caregivers	84 (53.8)	56 (57.7)	28 (47.5)
Friends	14 (9.0)	8 (8.2)	6 (10.2)
Teacher	10 (6.4)	9 (9.3)	1 (1.7)
HCW[#]	21 (13.5)	13 (13.4)	8 (13.6)
Chemist	20 (12.8)	10 (10.3)	10 (16.9)
Internet	11 (7.1)	6 (6.2)	5 (8.5)

4.4.6.4 Prevention of Regular Activities by Menstruation

About two thirds of adolescent girls (64.3%) and young women (69.6%) experienced limitations of regular activities during their menstrual periods. The major activity prevented for both age groups was performance of house chores in adolescent girls (40.5%), and house chores (32.7%) and sexual activity (32.7%) in young women. These were followed by religious activities (29.7% versus 30.6%) and school/work disruptions (28.4% versus 21.7%) in adolescent girls and young women respectively. The least impaired activity reported was sexual (13.5%) in adolescent girls and social (8.2%) activity in young women. There were no significant differences in these activities except for sexual activity; adolescent girls were about three times less likely to experience prevention of sexual activities than young women (OR =0.32 [95%CI: 0.13-0.78]; p = 0.010). These are illustrated in Figure 4.7.

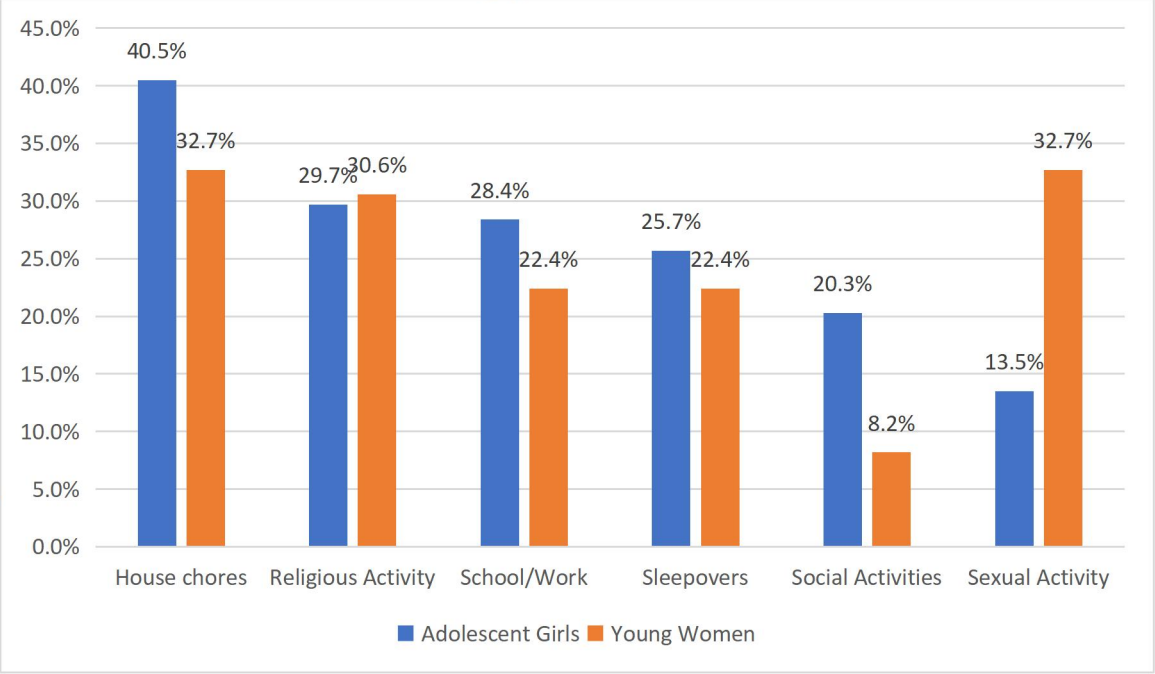

Figure 4.7: Activities disrupted by menstruation among study respondents

4.4.6.5. Knowledge of Date of Last Menstrual Period and Next Menstrual Period

Concerning knowledge of the dates of last menstrual period (LMP) and expected date of next period, more than one quarter of teenagers (26.2%) and young adults (29.0%) could not recall the date of their LMP. For the expected date of the next period, only 63.8% of young adults and 52.4% of teenagers could tell the date of their next period.

4.5 Adolescent and Youth Friendly Services

Three of the four study sites had adolescent and youth peer-support groups. These groups had formal meetings once a month, during which HIV and other services were also provided. Adolescent and youth friendly services were provided on a weekly basis in the fourth facility. Assessment of the perception of respondents on the AYFC showed that for the majority of respondents, the clinics held during regular work hours on weekdays and on weekends for only 31.6%. The clinic time was convenient for more than 3 quarters of participants. Of those who found the timing inconvenient, half would prefer a weekend clinic and half an afternoon clinic.

About half of respondents reported seeing SRH posters on the walls of their clinic, and two thirds had received information on contraception, STI, and pregnancy, of whom more than two thirds were comfortable enough to ask questions during the sessions and most received adequate answers to their questions. About a third of respondents said condoms were occasionally available at the clinic, placed discreetly for respondents to take if they wanted.

Two thirds of respondents felt services were provided on time and most (91.6%) thought the healthcare providers (HCP) exhibited a positive attitude towards them. These are shown in Table 4.32a.

Table 4.32a: Adolescent and Youth Friendly Clinic (AYFC) Characteristics

Variable	Number (%)
Clinic Time (443)**:**	
Regular hours	303 (68.4)
Weekend	140 (31.6)
Convenience of Clinic Time (264)**:**	
Yes	203 (76.9)
No/Not Sure	61 (23.1)
SRH Posters on walls (188)	
Yes	85 (45.2)
No	103 (54.8)
Received SRH Information (247)**:**	
Yes	164 (66.4)
No	83 (33.6)
Felt Comfortable to ask Questions (194)**:**	
Yes	134 (69.1)
No	60 (30.9)
Rcvd Answers to Questions (109)	
Yes	101 (92.7)
No	8 (7.3)
Condoms Availability (169)**:**	
Sometimes	53 (31.4)
No	116 (68.6)
Timeliness of Service (including HIV care**):**	
Services on time	117 (69.6)
Long waiting time	25 (14.9)
Can't comment on time	26 (15.5)
HCP Attitude:	
Friendly	296 (91.6)
Indifferent/Unfriendly	27 (8.4)

In the area of provision of SRH services specifically sought by respondents, 31 AYLHIV reported seeking specific services (counselling, contraceptives, pregnancy test, and STI treatment). While all who sought counselling received the service needed, only condoms could be provided (when available) for those who needed contraceptive services, others were referred to other parts of the facility or outside the facility in some cases. All those who sought services for pregnancy test and STI treatment were referred out, showing that comprehensive SRH services did not exist in any of the AYFCs in the study facilities. These results are shown in Table 4.32b.

Table 4.32b: SRH Service Availability in AYFCs

Service Sought	**N umber (%)**	Response
Sought Specific SRH Services	31 (7.0)	
Service Sought:		
SRH Counselling	9 (29.0)	Received
Contraception	12 (38.7)	Occasionally (only condoms)
Pregnancy Test	4 (12.9)	Referred
STI Treatment	9 (29.0)	Referred

4.6 Discussion of Findings

4.6.1 Baseline Characteristics of Respondents

Sociodemographic Characteristics

The study enrolled 443 randomly selected male and female AYLHIV aged 14-24 year. Majority were in school, of higher socioeconomic status, and one-third had lost one or both parents, and about 7% identified their sexual orientation as homosexual or bisexual. There were no statistically significant differences between male and female respondents in socio-demographic characteristics, but significantly more males identified as non-heterosexual. The expression of sexual orientation is probably reflective of the increased societal acceptance of gender and sexual diversity leading to more self-identification. The difference however, may not reflect a true population difference but may be due to greater boldness among male participants to declare their sexual identity[4].

Comprehensive Sexuality Education (CSE)

CSE a holistic approach to teaching about sexuality, relationships and reproductive health designed to equip young people with the knowledge skills and values to make healthy decisions, and taught in secondary schools in Nigeria. The study showed that majority of respondents had received CSE, in Junior Secondary School. Having had CSE had a significantly positive effect on knowledge of and attitude to SRH among study respondents. This is similar to what has also been found by Ogbonna et al. in Port Harcourt, Nigeria and Kim et al. in the USA, demonstrating the utility of CSE in improving adolescents' knowledge and attitude to SRH[5, 6].

HIV-Related Characteristics of Respondents

Findings from this study showed that more than 80% of respondents acquired HIV perinatally, i.e. through mother to child transmission. This is in keeping with the profile of AYLHIV in Nigeria. A study from Lagos among adolescents living with HIV found that perinatal transmission was the route of infection in 98% of respondents[7]. This is contrary to the situation in developed countries like the USA where the route of transmission is sexual for majority of adolescents and young adults with HIV[8]. This is because while Nigeria still accounts for a significant proportion of mother to child transmission globally, the elimination of perinatal transmission of HIV is within grasp.

With regards to disclosure of HIV status, only 27% had disclosed their status, and significantly more males than females had done so. Disclosure rates vary across regions and appears to be higher in Kenya and South Africa than in West African countries. A study in Ghana found a disclosure rate of 33.3% similar to the finding from this study[9]. Fear of stigma and disclosure is a major driver of non-disclosure, and in Nigeria, where there is still a significant amount of stigma concerning HIV, the low rate of disclosure is not surprising. To buttress this point, about half of those who had not disclosed among study respondents cited avoiding stigma and discrimination as the main reason for non-disclosure,

Social Habits of Respondents

The study also found that a quarter of respondents take alcohol. Studies have reported similar high alcohol use among adolescents and young adults with and without HIV[10].

The use of drugs of abuse was low among study respondents and the commonest drug used was cannabis, similar to findings from other studies[11].

Communication with Caregivers on SRH

SRH communication with caregivers and parents gives AYLHIV the opportunity to learn about HIV in the comfortable atmosphere of home, engenders trust and rapport with parents and positively impacts SRH outcomes. However, cultural taboos and possible parental lack of energy hinder this useful activity. This study found a parent/child SRH communication rate of only 32%. In this study. This is similar to the 37.7% from a study in Ethiopia and 26.7% from a study in Tanzania. This low parent child communication rate deprives young people this chance of getting information on SRH to help them make healthful choices[12,13].

4.6.2 Respondent's SRH Knowledge and associated Factors

Knowledge of SRH among Respondents

The study revealed a poor mean SRH knowledge score among respondents of 0.49 (± 0.20) which was below the 0.60 cut off for good knowledge. The best knowledge was demonstrated for puberty while the worst was for pregnancy and contraception. In terms of proportions, only 30.2% of respondents exhibited good knowledge of SRH, with the highest proportion (66.4%) being knowledgeable about puberty and the lowest (20.8%) being for pregnancy and contraception.

These findings are similar to those from other studies in Nigeria which yielded a knowledge prevalence of 41% in Lagos, 19.1% in Benin, and 36% in another study

among adolescents and young adults with and without HIV[14, 15, 16]. Similarly, a review of data from 8 sub-Saharan African countries and another from Iran showed poor SRH knowledge among adolescents[17, 18]. However other studies have revealed contradictory findings. A study in Lagos among adolescent boys and young men showed that 73% of respondents had good knowledge of SRH [19]. However, the mean age in this study was 21 years, so the respondents were older and that may have account for their higher knowledge prevalence.

The worst knowledge was in the area of pregnancy and contraception, with the least known item being the most favourable time in the menstrual cycle for conception to occur following sexual intercourse (only 12% of respondents knew this). While majority of respondents knew about condoms, about a third of males erroneously believed it reduced sexual pleasure, which may discourage its use among such respondents and predispose them to the negative consequences of unsafe sex like unwanted pregnancies and STIs. Furthermore, there was low knowledge (<20%) of long-acting reversible contraception (IUDs, implants and injectables), which has recommended for young people for its safety, convenience and adherence advantages[20].

This finding of low knowledge of pregnancy and contraceptive methods is similar to a study in Nigeria with a pregnancy and contraception knowledge prevalence of 8% and a review of articles from 1970 to 2016 from low- and middle-income countries, which showed very poor knowledge of contraception and pregnancy related issues among adolescents[21]. Our finding is however in contrast to the report of 78% prevalence of contraceptive knowledge among a cohort of 500 adolescents and young

adults from north central Nigeria[22]. The reason for the high contraceptive knowledge prevalence in this study is not clear.

Knowledge of HIV and other STIs was also poor at a prevalence of 33.6%, with knowledge of other STIs apart from HIV being only 19%. STI knowledge has generally been poor to moderate across several studies[23, 24, 25]. Poor knowledge of how to prevent STIs increases vulnerability of young people to becoming infected. For AYLHIV, this risk is more marked because HIV infection increases vulnerability to other STIs [26]. Poor knowledge of symptoms of, and where to get treatment for STIs is particularly inimical for females in whom the manifestation of various STIs is not as dramatic as in males. Untreated STIs cause chronic inflammatory changes in the reproductive tract increasing susceptibility to HIV and leading to impaired future fertility prospects[26,27].

Studies have shown that sociocultural barriers, poor education, economic challenges, and myths about contraception and other aspects of SRH hinder young people from access to SRH information and services [28, 29, 30]. Poor SRH knowledge leads to uninformed choices and decisions which result in adverse SRH outcomes [31]. Unprotected sex is at the root of many of these unfavourable outcomes such as unintended pregnancy, abortion, poor child and maternal outcome, and acquisition of sexually transmitted infections and the attendant negative social and economic impact. It is informative that even young adults aged 20-24 years in this study, 52% of whom were sexually active had abysmal knowledge of the fertile period during the menstrual cycle. This shows a huge gap with far reaching implications. It is, therefore,

imperative that the provision of accessible SRH information and services for young people be prioritized.

Factors Associated with SRH Knowledge

Female AYLHIV had significantly higher knowledge scores than males and adolescents. This is similar to findings from a Nigerian study but is in contrast to findings in a review article that showed that males demonstrated higher SRH knowledge than females[15, 32]. Both articles were among HIV uninfected youth. Females are generally disadvantaged in the area of knowledge as a result of norms that limit female acquisition of knowledge. However, male and female AYLHIV face barriers of stigma and discrimination. This may have contributed to the general poor knowledge of SRH among respondents but does not explain the better knowledge displayed by females. More studies in this area will help to shed more light on the subject.

Young adults were also significantly more knowledgeable in all areas except puberty than adolescents, which is not surprising, since they are older and have had more education than the adolescents. Living with both parents, higher socioeconomic status, having received comprehensive sexuality education (CSE), disclosed HIV status, and SRH communication with caregivers were all also significantly associated with good SRH knowledge.

Even though majority of participants had received comprehensive sexuality education, its positive effect on SRH knowledge in this study was striking. This underscores the importance of providing accurate information on SRH to young people. This is key to taking informed decisions and making healthy choices. Without appropriate

information, young people are groping in the dark, and seeking to get information from peers or social media, may get the incomplete or completely wrong information leading to poor choices and adverse SRH consequences that may have lifelong negative impact.

Communication with parents and caregivers on SRH related topics also had a significantly positive impact on SRH knowledge. Discussing SRH in a trusted environment like the home and with trusted persons like parents engenders confidence in young people, enabling them to seek clarifications on issues not fully understood without fear of being labelled loose or promiscuous. As a matter of fact, this open discussion at home can be a deterrent to risky behavior as the young ones would not want to betray the trust reposed in them by parents/caregivers in openly discussing SRH matters with them[33].

4.6.3 Attitude of Respondents to SRH

The study showed that 50.3% of respondents had a positive attitude towards SRH issues. Female respondents obtained higher attitude scores in all areas assessed. A positive attitude to SRH usually translates to safe SRH behaviours and general wellbeing of young people. The findings from this study that majority of respondents had a positive attitude towards SRH is similar to findings by Isara and Nwaogwugwu from Benin, City Nigeria and Jemimah et al from India[15].

4.6.4. Sexual Experience of Respondents

Findings from the study showed that one third of respondents were sexually experienced, with a mean age at coitarche of 17 years, about a quarter had early sexual debut, and average total sexual partners of 3.6. Males had earlier sexual debut and higher numbers of sexual partners. Our findings are in keeping with findings from Benin and Lagos in Nigeria and Accra in Ghana[14, 15,35]. The findings of the high-risk behaviors of early sexual debut and multiple sexual partnership may explain the high prevalence of poor SRH outcome among AYAs.

A quarter of sexually experienced AYLHIV had been victims of sexual violence, with females being more likely to be abused, and most of the abusers being known to the victims. Sexual abuse was associated with poor parental communication, transactional sex, and unwanted pregnancies. Similar rates of sexual abuse had been seen in other studies in Nigeria[15, 36]. However, a multi-country systematic review and meta-analysis showed a lower mean prevalence of 6.1%[37]. The difference may be accounted for by dilution from non-LMIC countries with lower rates of sexual violence.

High-risk sexual behaviours like inconsistent condom use (52.9%), transactional sex (23.3%), multiple sexual partners (51.8%) and one-night stands (25.9%) were prevalent from this study with males being significantly more likely to engage in these practices. These results are similar to findings from a study in Osun State, Nigeria[38]. These high-risk behaviors are associated with adverse outcomes like unwanted pregnancies.

Inconsistent condom use was practiced by 52.9% of sexually-active respondents, similar to a study from Eswatini[39]. This dangerous practice puts young people at risk of sexually transmitted infections and unwanted pregnancies and their adverse sequelae. The mean prevalence of STIs was 14.3%, with higher prevalence in females, and the commonest STI being gonorrhea. This prevalence is in-between the low global average of 7.1% and the higher prevalence of 27.7% among female adolescents and young adults from southern Nigeria[40 ,41]. The higher prevalence from females in southern Nigeria reflects the finding of higher STI prevalence globally and in this study[42].

A third of sexually active female respondents had been pregnant, 83% of these pregnancies were unwanted and over half had been aborted. Unintended pregnancies were associated with poor parental status (deceased/separated parents), lower socioeconomic status, no SRH communication and poor knowledge of SRH. These are in consonance with another study from Nigeria and buttress the need for SRH education and economic empowerment of adolescent girls and young women.

4.6.5 Menstruation Experience of Female Respondents

Most respondents (91%) had attained menarche at mean age of 13.3 years, similar to other studies from Nigeria[43, 44, 45]. Majority of respondents had high menstrual hygiene practice (MHP) and this was significantly associated with knowledge of menstruation before menarche. However, about a third of respondents could not recall their last menstrual period and did not know the expected date of the next period. A similar study in southeastern Nigeria found a low menstrual hygiene

practice but similar prevalence of poor knowledge of LMP and next period date[46]. This discrepancy in MHP could be because the current study took place in metropolitan Lagos while the southeast study was conducted among rural communities, with possible poorer WASH facilities. This demonstrated poor knowledge of LMP and next period date negatively impacts the ability of these adolescent girls and young women (AGYW) to avoid unwanted pregnancy and its consequences. The fertile period, during which sexual abstinence or use of effective contraception is essential to prevent unwanted pregnancy, is usually the four to five days in the middle of the menstrual cycle, and not being aware of this fertile period puts these AGYW at increased risk of unwanted pregnancy.

4.6.6 Perception of Adolescent and Youth Friendly Clinics (AYFC)

This study found that the timing of the clinics was not always convenient to the respondents and that only SRH counselling and occasional condoms could be provided at these centres, necessitating referrals for other SRH services, similar to the findings by Adelekan et al. in Lagos Nigeria[14]. Unavailability of essential SRH services at the AYFCs could propel young people into the hand of quacks leading to adverse SRH outcomes. This call for an urgent need to upscale services at these AYFCs so they could provide comprehensive SRH services.

Chapter 4 Endnote

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Chapter Five

Conclusion and Recommendations

5.1 Summary of Findings

Assessment of the sexual and reproductive health knowledge of respondents showed a poor mean SRH knowledge score of 49.0%, with 30.2% of respondents having good overall knowledge of SRH. The best knowledge score was for puberty (73.0%) while the worst was for pregnancy and contraception (40.0%). The best-known contraceptive method was the condom while the least known were the long-acting reversible contraceptive methods.

The factors significantly positively associated with good knowledge of SRH were female sex. Older age group (20-24 years), living with both parents, higher socio-economic status, having received comprehensive sexuality education (CSE), having disclosed HIV status, having SRH communication with caregivers, and being sexually experienced.

Majority of respondents demonstrated a positive attitude to SRH, with an overall mean attitude score of 25.4%. The best score (32.5%) was for high-risk sexual behavior, while the lowest score was for condom use. The factors positively associated with positive attitude to SRH were having received CSE, SRH communication with caregivers, and good SRH knowledge. The factors negatively associated with positive attitude were alcohol use and being sexually experienced.

For SRH experiences of respondents, 68.7% had been/were in a romantic relationship. Males started romantic relationships earlier than females and had a higher mean number

of relationships. A third of respondents were sexually experienced, with mean age at sexual debut of 17.2 years. Almost one-quarter had an early sexual debut, and males had an earlier sexual debut than females. Deceased or separated parents, being out of school, and older age, and good SRH knowledge were associated with sexual experience. Early sexual debut was associated with male sex, sexual abuse, intimate partner violence and high-risk sexual behavior.

Inconsistent condom use (52.9%), transactional sex (23.3%), multiple sexual partnership (51.8%) and one-night stands (25.9%) were high-sexual risk behaviours prevalent among respondents. One in seven respondents had experienced an STI, the commonest of which was gonorrhoea, and 36.2% of sexually experienced females had been pregnant, which was unintended and unwanted in 83.3% of cases. Most unwanted pregnancies were aborted, mostly outside a health facility.

Most female respondents had experienced coitarche, and majority demonstrated good menstrual hygiene practice with a mean score of 75.3%. Learning of menstruation before menarche was associated with good MHP score. About a third did not know their LMP and the expected date of their next period.

For respondents' perception of adolescent and youth friendly centres in their HIV treatment facilities, a quarter found the timing of the clinic inconvenient and would prefer an afternoon or weekend clinic. Majority had received information on various aspects of SRH from these centres but only SRH counselling and occasional condoms in terms of SRH services.

5.2 Conclusion

There was overall poor knowledge poor knowledge of SRH, especially concerning pregnancy and contraception. This made respondents' vulnerable to adverse SRH outcome like early sexual debut, sexual abuse and intimate partner violence, high-risk sexually behaviours and unintended pregnancies which were prevalent among the study population. This poor SRH knowledge was associated with poor socio-economic, educational and HIV non-disclosure status of respondents, and highlights the need for education, especially CSE for both in-school and out-of-school respondents, economic empowerment, family support and intensified counselling and support for HIV disclosure among adolescents and young adults with HIV.

The female respondents demonstrated good menstrual hygiene practice but about a third lacked knowledge of LMP and next period rendering them susceptible to unwanted pregnancies and unsafe abortions, which were also demonstrated in this study as more than a third of female respondents had been pregnant with most of such pregnancies, unwanted and aborted in questionable hygiene and sanitary conditions outside a health facility. This buttresses the need to intensify strategies to ensure that all female adolescents receive appropriate education on menstruation, preferably starting before menarche.

Some of the Adolescent and Youth Friendly Centres in study sites operate at hours not convenient for young people. Strategies geared towards making the time suitable for AYLHIV to improve their access and utilization of services should be explored. Only SRH counselling and occasional condoms are available at these centres necessitating referrals for other SRH services, and predisposing AYLHIV to seek services from

questionable sources or not seek the services at all with possible adverse outcome. It is therefore of utmost importance that these centers be equipped with human and material resources.be able to offer comprehensive SRH services to AYLHIV.

5.3 Recommendations

Based on the findings from this study, the following recommendations are made.

Policy Recommendations

1. Ensure that comprehensive sexuality education is available to both in-school and out-of-school adolescents, by providing training and support for community-based organization to ensure it reaches every child.
2. Training and retraining of healthcare workers in the field of HIV prevention, care, to equip them with skills for counselling skills for adolescents and young adults with HIV, especially with regards to disclosure and for prevention of mother to child transmission of HIV.
3. Upgrade of Adolescent and Youth Friendly Centres with relevant human and material resources to enable them offer comprehensive SRH information and services to adolescents and young adults living with and without HIV.
4. Improvement of the earning power of families, and provision of social and economic support for families most in need.

Other Recommendations

1. CBOs and religious organizations can facilitate parenting training for community members and congregation to facilitate child parent communication

2. Need for advocacy to tackle the cultural norms that prohibit discussion of SRH to adolescents and also debunk myths and untruths about SRH
3. Radio and television jingles to promote SRH knowledge and attitude of AYAs will also be beneficial.

5.4 Contribution to Knowledge

This study revealed the poor knowledge of sexual and reproductive health among adolescents and young adults living with HIV and the attendant poor SRH outcomes of early sexual debut, sexual abuse and intimate partner violence, inconsistent condom use and other high-risk sexual practices as well as unintended pregnancies ending in unsafe abortions.

The revelations from this study, which was multi-centre and involved male and female, in-school and out-of-school, and perinatally and horizontally infected respondents gives a broad view of SRH among adolescents and young adults living with HIV, and highlight gaps in knowledge and service provision that culminated in adverse SRH experiences and outcomes of respondents. Suggestions for meeting the identified needs are proffered and, if actioned on, will contribute to the improvement of the SRH of AYLHIV and their general health and wellbeing.

5.5 Suggested areas for further research

- A mixed method qualitative a quantitative study involing AYLHIV, their parents/caregivers, and other relevant stake holder like healthcare providers and policy makers will provide deeper exploration of the needs of AYLHIV

- A nationwide study of SRH in AYLHIV will help provide data which will be applicable to the entire country.
- A comparative study in AYAs living with and without HIV will reveal possible differences in knowledge and experience of SRH and the factors behind the difference which may help to plan better SRH interventions for young people.

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Appendix I: Study Questionnaire

ASSESSING THE SEXUAL AND REPRODUCTIVE HEALTH NEEDS OF YOUNG PEOPLE WITH HIV

QUESTIONNAIRE

Study ID: _____

Date: _____

Section 1: Sociodemographic Characteristics

1.	Sex	Male 1	
		Female	2
		Other (*specify* ---------- 3	
2.	Date of birth	[ ][ ]/[ ][ ]/ [ ][ ] (dd/mm/yy)	
3.	Age last birthday	[ ][ ] years	
4.	Parental status	Both alive and living together	1
		Both alive but separated	2
		Mother not alive	3
		Father not alive	4
		Both parents not alive 5	
5.	What is your type of family structure	[ ] Two-parent family	1
		[ ] Single parent (mother/father) 2	
		[ ] Polygamous family	3
		[ ] Foster family (g/parent/uncle/aunt)	4
		[ ] Other (*specify* _____ 5	
6.	Primary Caregiver	Myself 1	
		Both parents	

	2	
	Father	
	3	
	Mother	4
	G/parent/uncle/aunt/sibling	5
	Other (*specify* _____	
	6	
7. How many people live in your household (including you)	[ ][ ] (*number)*	
8. What type of accommodation do you live in	1 or 2 rooms with shared conveniences	
	1	
	One bedroom self-contained	
	2	
	2/3-bedroom flat	3
	≥ 4-bedroom apartment/house	
	4	
	Other (*specify* _____	
	5	
9. Area of residence Town/LGA	_____/_____	
10. Are you currently in school	Yes	
	1	
	No	2
	Never attended school	88
11. If YES, what level of schooling are you at	Primary	1
	JSS	2
	SSS	3
	ND	4
	HND	5
	University Undergraduate	6
	Postgraduate (PGD, Masters, Ph.D.)	7
	Other (*specify*_____	

	8	
12. If out of school, what is the highest level of education you attained	Primary	1
	JSS	2
	SSS	3
	ND	4
	HND	5
	University Bachelor's degree	6
	Postgraduate (PGD, Masters, Ph.D.)	7
	Other (*specify* ---------- 8	
13. If out of school, at what age did you leave school	[ ][ ] years	
	Can't remember	2
14. What is the reason for leaving school? *Please tick the most important reason*	Had completed my education	1
	No longer interested in school 2	
	Not doing well and asked to withdraw	3
	Financial difficulties 4	
	Wanted to learn a trade 5	
	Got pregnant	6
	Other (*specify* ---------- 7	
15.	Nothing	88
A. If you are not in school, what are you doing currently	Housewife 1	
	Apprentice (*specify* _____ 2	
	Artisan (*specify* _____ 3	
	Trader	4
	Clerical Job	

	5		
	Professional (*specify* _____ 6		
B. If you are working, how much do you earn in a month	Looking for work 7		
	Other (*specify*_____ 8		
	---------- (₦)		
16. How old were you when you started working for pay	[ ][ ] years		
17. What is your marital Status	Single (never married) 1		
	Married		2
	Co-habiting		3
	Separated/Divorced		4
	Widowed 5		
18. If married, age at first marriage	[ ][ ] years		
19. How long have you been married	---------- (years/months)		
20. How many children do you have	_____	None	88
21. What is your religion	Christian:		1
	Moslem		2
	Traditional Religion 3		
	Other (*specify* ----------		4
	None		88
22. How important is religion in your life?	Very important		1
	Important		2
	Not important		3

23. Do you find it easy or difficult to discuss things that are important to you with your parents/caregivers	Easy	1
	Average	2
	Difficult	3
	I don't discuss such with them	88
24. How often do you discuss sex-related matters with your parents/caregivers	Often	1
	Occasionally	2
	Never	3
25. Apart from parent/caregiver, have you ever discussed sex-related matters with anyone else? If 'YES', please specify the person	Yes 1 _____ ---------- (*who)*	
	No	88
26. Do you ever drink alcohol (beer, wine, whiskey, brandy, vodka, bitters, local brews)?	Yes 1	
	Never	88
27. Have you ever smoked?	Yes 1	
	No	88
28. If 'YES', what did/do you smoke?	Cigarettes 1	
	Shisha	2
	Marijuana (igbo, weed, loud)	3
	Other (*specify* ----------	4
29. Do you take any recreational drugs (dope/coke/crack/hard drugs)	Yes 1	
	(*specify*: i. ----------_____	
	ii. ----------_____	
	iii. ----------_____	

Never 88

Section 2: HIV and ART History

1. How old were you when you were diagnosed with HIV — [ ][ ] months/years
2. WHO clinical Stage at HIV diagnosis — _____
3. Mode of HIV transmission
   - Perinatal 1
   - Sexual 2
   - Other (specify _____ 3
   - Unknown 4
4. Parental HIV status
   - Mother: 1
     a. Positive
     b. Negative
     c. Don't know
   - Father: 2
     a. Positive
     b. Negative
     c. Don't know
5. When did you start taking antiretroviral drugs (ARV) — [ ][ ][ ][ ] (*year*)
6. What ARV are you taking at the moment
   _____ (*drug 1*)
   _____ (*drug 2*)
   _____ (*drug 3*)
   _____ (*drug 4*)
7. Is your ARV:
   - First line 1
   - Second line 2
   - Third line/salvage 3

Section 3: Knowledge of Sexual and Reproductive Health

Knowledge of Puberty and Menstruation

1. What is puberty — Body changes in early adolescent years in preparation for adulthood 1

	Don't know	88
2. What changes occur during puberty (*Please tick as many as apply)*	Increased body growth	1
	Development of breast	2
	Enlargement of penis/scrotum	3
	Development of axillary/pubic hairs	4
	Deepening of male voice	5
	Onset of menstruation in girls	6
	Onset of wet dreams in boys	7
	Other (*specify* _____	8
	Don't know	88
3. What is menstruation (period, menses)	Monthly bleeding from a girl's/woman's vagina	1
	Don't know	2
	Have never heard of it	88
4. At what age does menstruation usually start (menarche)	[ ][ ] years	
	Don't Know	88
5. What is the normal duration of menstruation	< 3 days	1
	3-5 days	2
	>5 days	3
	Don't know	88
6. How frequently does menstruation usually occur	Once every month	1
	Once every 3 months	2
	2 times in a year	3
	Don't know	88
7. Where is the menstrual bleeding coming from?	Womb	1
	Urinary bladder	2
	Anus	3
	Don't Know	88
8. What can be used to absorb the menstrual flow? *Please tick as many as you know*	Don't know	88
	Sanitary pad	1
	Tissue paper	2
	Cotton wool	3
	Tampon	4
	Cloth	5

	Menstrual cup	6
	Other (specify _____	7
9. Proper hygiene during the menstrual period can prevent infection	Yes	1
	No	2
	Don't know	88
10. Do you know of any restrictions associated with the menstrual period? If YES, pls tick as many as you know	Not participate in some religious activities	1
	Not attend school	2
	Not attend social functions	3
	Not interact with boys	4
	Not cook for the family	5
	Cannot eat certain foods	6
	Not engage in sex	7
	Other (*specify* _____	8
	No restrictions	9
	Don't know of any restriction	88
11. A girl stops growing after she starts her menstrual periods (menarche)	Yes	1
	No	2
	Don't know	88
12. Menstrual pain stops after a woman starts having sexual intercourse	Yes	1
	No	2
	Don't know	88
13. When did you learn about menstruation	Before menarche	1
	After menarche	2
	Have never learned about it	88
14. A girl stops growing after she has sexual intercourse for the first time.	Yes	1
	No	2
	Don't Know	88
15. A girl/woman can get pregnant the very first time that she has sexual intercourse	Yes	1
	No	2
	Don't know	88
16. At which time of the menstrual cycle is a woman most likely to get pregnant if she has sex	During the menstrual period	1
	Immediately after the period	2
	In the middle of the menstrual cycle	3
	Just before the period	4

	At any time during the cycle	5
	Don't know	88
17. Do you know any method that can be used to prevent pregnancy after sex (contraception)	Yes	1
	No	2

Knowledge of Contraception

18. <u>Male Condom</u> A boy/man can put a rubber device on his penis before sexual intercourse	Yes No Don't know 88	1 2	Do you know any place or person where young people could obtain this method? Yes 1 No 2
19. <u>Female (internal) Condom</u> A girl/woman can put a rubber device inside the vagina (or anus) before sexual intercourse	Yes No Don't know	1 2 88	Do you know any place or person where young people could obtain this method? Yes 1 No 2
20. Male or female condom can be used more than once	Yes No Don't know	1 2 88	
21. Condoms reduce sexual pleasure	Yes No Don't know	1 2 88	
22. Condoms can slip of and disappear inside a girl's/woman's body during sex	Yes No Don't know	1 2 88	
23. <u>Contraceptive Pill:</u> Girls/Women can take a pill every day	Yes No Don't know	1 2 88	Do you know any place or person where young people could obtain this method? Yes 1 No 2
24. <u>Injection</u> Women can have an injection every 2 or every 3 months	Yes No Don't know	1 2 3	Do you know any place or person where young people could obtain this method? Yes 1 No

2

25. Emergency Contraceptive Pills

A girl/woman can take pills soon after intercourse

Yes 1
No 2
Don't know 3

Do you know any place or person where young people could obtain this method?
Yes 1
No 2

26. Withdrawal

A man can pull out of a woman before ejaculation

Yes 1
No 2
Don't know 3

27. Periodic Abstinence/Rhythm/Safe Period

A couple can avoid sex on days when pregnancy is most likely to occur

Yes 1
No 2
Don't know 3

28. There are other methods of contraception that I have not mentioned. What other methods have you heard of?

Circle each method mentioned

IUD 1
Implant 2
Jelly/foam 3
Female Sterilization 4
Male Sterilization 5
Washing vagina after sex 6
Drinking stout/lime after sex 7
Other (*specify* _____ 8

29. Which method do you think is most suitable for young people?

Circle only one answer

Contraceptive Pill 1
Injection 2
Condom 3
Emergency Pills 4
Withdrawal 5
Periodic Abstinence 6
Implant 7
IUD 8
Other (*specify* _____ 9

Knowledge of HIV/AIDS and other STIs

30. There is a cure for HIV/AIDS	Yes	1
	No	2
	Don't know	88
31. A person with HIV always looks emaciated or unhealthy in some way	Yes	1
	No	2
	Don't know	88
32. People can take a simple test to find out whether they have HIV	Yes	1
	No	2
	Don't know	88
33. Apart from HIV, there are other diseases that men and women can catch by having sexual intercourse.	Yes	1
	No	2
Have you heard of/know any of them?		
34. If YES, please tick as many as you have heard of or know	Gonorrhoea	1
	Chlamydia (clap)	2
	Herpes	3
	Syphilis	4
	Genital warts	5
	Trichomoniasis	6
	Typhoid fever	7
	Tuberculosis	8
	Other (*specify* ----------	9
35. What are some of the signs and symptoms of STIs/STDs in a boy/man	Pain during urination	1
	Discharge from penis	2
	Blisters/sores on the penis	3
	Warts on penis	4
	Other (*specify* _____	5
	Don't know	88
36. What are some of the signs and symptoms of STIs/STDs in a girl/woman	Pain during urination	1
	Discharge from vagina	2
	Blisters/sores on the vagina/vulva	3
	Warts on vagina/vulva	4
	Other (*specify* _____	5
	Don't know	88
37. If a friend of yours needed treatment for an STI, where could he or she obtain such treatment? PROBE Any other places?	Shop	1
	Pharmacy	2

Circle each mentioned	Govt. hospital/health centre/clinic	3
	Private doctor/nurse/clinic	4
	Other (*Specify*_____	5
38. How can STIs/STDs be prevented	Abstinence	1
	Faithfulness to a faithful partner	2
	Use condom	3
	Take medicine before/or after sex	4
	Wash genitals immediately after sex	6
	Other (*specify* ----------	5
	Don't know	88
39. From whom/what did you get information on sexual and reproductive health	Mother	1
	Father	2
	Sibling/Other relative	3
	Friends	4
	Teacher	5
	Health Worker	6
	TV/Radio/Newspaper	7
	Internet/social media	8
	Others (specify ----------	9

Comprehensive Sexuality Education (Family Life and HIV Education [FLHE])

40. Did you receive Family Life and HIV Education (FLHE)/Sexuality education classes while in school	Yes	1
	No	2
	Can't remember	3
	Never went to school	4
41. If YES, in at what school level were the classes given	Primary	1
	JSS	2
	SSS	3
	Post-secondary	4
42. What topics were covered in the classes	Reproductive biology	1
	Sexual development	2

Please tick as many as you remember	Body image	3
	Contraception	4
	STI/STDs	5
	Unplanned pregnancy	6
	Abortion	6
	Relationships	7
	Gender roles	8
	Other (*specify* ----------	9
43. How did you find the classes	Very informative	1
	Moderately informative	2
	Not informative	3
44. What school level do you think is the best to teach the FLHE classes	Primary	1
	JSS	2
	SSS	3
	Post-secondary	4
	Other (*specify* ----------	5
45. What do you consider should be the best source of information for sexual reproductive health for young people	Mother	1
	Father	2
	Sibling/Other relative	3
	Friends	4
	Teacher	5
	Health Worker	6
	TV/Radio/Newspaper	7
	Internet/social media	8
	Others (specify ----------	9

<u>Section 4</u>: Sexual and Reproductive Health Behaviour and Experience

1. Have you ever had a boy/girlfriend (romantic involvement)	Yes	1
	No	2 → 44
2. How many boy/girlfriends have you had	[_][_]	
3. How old were you when you had your first boy/girlfriend	[_][_] years	
4. How old was your first boy/girlfriend	__ __ years	
	Don't know	88
5. Do you have a boy/girlfriend now	Yes	1
	No	2
6. If 'yes', how old is your current/most recent boy/girlfriend	[_] [_] years	
	Don't know	88
7. When you started your relationship, what was your current/most recent boy/girlfriend	Single	1
	Married	2
	Divorced/Separated	3
	Don't know	88
8. Is your current boy/girlfriend	Student	1
	Working	2
	Neither	3
	Don't know	88
9. What is the duration of your current/most recent relationship	[_][__] (months/years)	
10. Has the relationship ended	Yes	1
	No	2
11. If 'yes', who decided to end the relationship	I	1
	My boy/girlfriend	2
	Both of us	3
	Other (specify _____	4
12. During your current/most recent	Yes	1

relationship, did you date anyone else	No	2
13. If relationship is still on, how would you describe your relationship with your current boy/girlfriend	Casual	1
	Serious	2
	Important/might lead to marriage	3
	Engaged to be married	4
14. How do you think your boy/girlfriend would describe your relationship	Casual	1
	Serious	2
	Important/might lead to marriage	3
15. Did you and your boy/girlfriend have any physical contact, such as holding hands, hugging or kissing?	Yes	1
	No	2
16. Did you have sex with your current/most recent boy/girlfriend	Yes	1
	No	2
17. How old were you when you first had sex with him/her	[ ][ ] years	
18. What type of sex did you have	Oral sex	1
	Vaginal sex	2
	Anal sex	3
	Other (*specify* _____	4
19. Think back to the first time you had sex with your current/most recent boy/girlfriend - I mean the first time that the penis was in the mouth/vagina/anus. Would you say.	You forced him/her to have sex	1
	You persuaded him/her	2
	He/she forced you	3
	He/she persuaded you	4
	Both were equally willing	5
20. Was that first sexual experience planned or unexpected	Planned	1
	Unexpected	2
21. Was that the first time you had sex in your life	Yes	1
	No	2
22. If 'no', how old were you the first time you had sex	[__][__] years	

23. Did you regret having intercourse with your current/most recent boy/girlfriend that first time?	Yes, regretted	1
	No, not regretted	2
24. If you regretted it, please give your reason	----------	
	----------	
25. On that first time did you or he/she do anything to avoid pregnancy?	Yes	1
	No	2
26. If yes, what method did you use?	Condom (male or female)	1
	Contraceptive Pill	2
	Injection	3
	Withdrawal	4
	Safe period	5
	Emergency contraception	6
	Other _____	7
27. Apart from the first time, did you and he/she ever use a method to avoid pregnancy? If 'Yes', Always or sometimes?	Always	1
	Sometimes	2
	Never	3
28. What method(s) did you and he/she mostly use? (*Multiple responses permitted*)	Condom (male or female)	1
	Contraceptive Pill	2
	Injection	3
	Withdrawal	4
	Safe period	5
	Emergency contraception	6
	Other _____	7
29. Where did you or he/she get this method? (*Circle only one*)	Shop	1
	Pharmacy/Chemist	2
	Govt. Clinic/Health Centre/Hospital	3
	Private Doctor/Nurse/Clinic	4

	Friend	5
	Other (*specify* _____	6
	Don't know	88
30. Whose decision was it to use a method to prevent pregnancy? Was it mainly your decision, his/her decision or a joint decision?	My decision	1
	His/her decision	2
	Joint decision	3
	Other (*specify* ----------	4
31. Were you ever concerned that you might catch a sexually transmitted disease from him/her? If YES: Very or somewhat?	Very concerned	1
	Somewhat concerned	2
	Not concerned	3
32. Were you able to do anything to reduce the risk of infection	Yes	1
	No	2
33. If YES, what did you do? *Probe*	Used condoms	1
	Took preventive medicines	2
	Washed the genitals immediately after sex	3
	Other (*specify*_____)	4
34. How often have you had a sexually transmitted infection?	Once	
	More than once	
	Never	
35. What was the name of the STI you had	Gonorrhoea	1
	Chlamydia (clap)	2
	Herpes	3
	Syphilis	4
	Genital warts	5
	Trichomoniasis	6
	Other (*specify* ----------	7
36. During the last time you had an STI, where did you seek treatment	Shop	1
	Pharmacy	2
	Govt. hospital/health centre/clinic	3
	Private clinic/hospital	4

	Other ……	5
	Did not seek treatment	6
37. Did your sexual partner (any of your partners) also obtain treatment?	Yes	1
	No	2
	Don't know	88
38. **Males:** did you ever get her pregnant? **Females:** Did he ever get you pregnant	Yes	1
	No	2
39. Was the pregnancy planned or unplanned	Planned	1
	Unplanned	2
40. What happened to the pregnancy	Currently pregnant	1
	Abortion	2
	Miscarriage	3
	Live-birth	4
	Stillbirth	5
	Not sure	6
41. If the pregnancy ended in abortion, where was the abortion done	At home	1
	At a chemist/drug store	2
	At a clinic/hospital	3
	At a nurse's/doctor's home	4
	At a traditional medicine practitioner's	5
	Other (*specify* _____	6
42. If you gave birth, where did you receive care for the pregnancy	Private clinic/hospital	1
	Govt. hospital/health centre/clinic	2
	Nurse's home	3
	Traditional birth attendant's	4
	Other (*specify* _____	5
	I did not receive any pregnancy care	6
43. Where did you give birth	Private clinic/hospital	1

	Govt. hospital/health centre/clinic	2
	Nurse's home	3
	Traditional birth attendant's	4
	At home	5
	Other (*specify* _____	6
44. Have you experienced any challenge in forming and/or maintaining romantic relationships	Yes	1
	No	2
	Not ready for a romantic relationship	3
45. If YES, was the challenge in forming or maintaining a relationship	In forming	1
	In maintaining	2
	In forming and maintaining	3
46. Briefly describe the challenge(s) you have had	_____	
	_____	
	_____	
	_____	
47. Some young people are forced to have sexual intercourse against their will by a stranger, a relative or an older person. Has this ever happened to you?	Yes	1
	No	2
48. How many different strangers, relatives or older persons have forced you to have sex against your will?	Stranger(s): [__] [__]	
	Relative(s): [__] [__]	
	Older person: [__] [__]	
49. How often have you been touched on the breast or other part of your body when you did not want to be, by a stranger, a relative or an older person?	Often	1
	Sometimes	2
	Rarely	3
	Never	4
50. Some young people have 'one-night stands' (have sex with someone you just met), perhaps after a party or after	Yes	1
	No	2

drinking? Has this ever happened to you?		
51. How many 'one-night stands' have you had?	[__] [__] (*number*)	
	Can't remember	1
52. Did you or the sexual partner do anything to avoid a pregnancy on these occasions?	Always	1
	Sometimes	2
If YES, was it always or sometimes?	Never	3
53. **A**. Some young people pay money or give gifts in exchange for sexual intercourse. Has this ever happened to you?	Yes	1
	No	2
B. Some young people receive money or gifts in exchange for sexual intercourse. Has this ever happened to you?	Yes	1
	No	2
54. How many people have you had sex with for money or gifts?	[__] [__] (*number*)	
	Can't remember	1
55. Did you or the sexual partner do anything to avoid a pregnancy on these occasions?	Always	1
	Sometimes	2
If YES, was it always or sometimes?	Never	3
56. In your whole life, how many people have you had sexual intercourse with?	[__] [__] (number)	
	Can't remember	1
	Never had sex with anyone	2
57. How long ago did you last have sexual intercourse with anyone? If less than one week, enter **00** weeks	[__] [__] weeks or months (circle as appropriate)	
58. On that last occasion did you or your partner do anything to avoid pregnancy?	Yes	1
	No	2
59. If YES, what method was used?	Condom	1
	Contraceptive Pill	2

	Injection	3
	Withdrawal	4
	Safe Period	5
	Emergency Contraception	6
	Other …….……	7
60. **MALES:** Have you ever made a girl or woman pregnant? If YES, how many times? **FEMALES:** Have you ever been pregnant? If YES, how many times?	[__] [__]	
	Not Sure	1
	Never	2
61. Thinking of the most recent pregnancy, did you want the pregnancy at that time or not want it?	Wanted	1
	Not wanted	2
62. What happened to the (last) pregnancy?	Currently pregnant	1
	Abortion	2
	Miscarriage	3
	Live-birth	4
	Not sure	5

For those who have never experienced sexual intercourse

People may have mixed reasons for not having intercourse. I will read out some reasons. Please tell me for each reason whether it applies to you or not.	**Applies**	**Does not apply**	**Not sure/Don't know**
63. I don't feel ready to have sex.	1	2	3
64. have not had the opportunity	1	2	3
65. It is against my religious beliefs	1	2	3
66. I think that sex before marriage is wrong	1	2	3
67. I am afraid of getting pregnant	1	2	3
68. I am afraid of getting HIV/AIDS or another sexually transmitted infection.	1	2	3

69. And now I have a question about your future plans for sexual intercourse. Which of these statements best describes your plans?	Wait until marriage	1
	Wait until Engaged to be married	2
	Wait until I find someone I love	3
	Wait until an opportunity comes along	4
	Other (*specify* _____	5
70. Do you feel any pressure from others to have sexual intercourse? If YES, a great deal or a little?	A great deal	1
	A little	2
	None	3
71. From whom do you feel pressure? ***Circle all that apply***	Friends	1
	Relatives	2
	Lecturers	3
	Boss at work	4
	Work colleagues	5
	Partner/special friend	6
	Other (*specify* _____	7

Sexuality and Gender Norms

Young people have various views about relationships. I will read you out some views. For each one, please tell me whether you agree or disagree?	**Agree**	**Don't Know /Not sure**	**Disagree**
1. believe it's all right for unmarried boys and girls to have dates	1	2	3
2. believe it's all right for boys and girls to kiss, hug and touch each other.	1	2	3
3. I believe there is nothing wrong with unmarried boys and girls having sexual intercourse if they love each other.	1	2	3
4. I think that sometimes a boy has to force a girl to have sex if he loves her	1	2	3
5. A boy will not respect a girl who agrees to have sex with him.	1	2	3
6. Most girls who have sex before marriage regret it afterwards.	1	2	3

7. Most boys who have sex before marriage regret it afterwards.	1	2	3
8. A boy and a girl should have sex before they become engaged to see whether they are suited to each other	1	2	3
9. I believe that girls should remain virgins until they marry.	1	2	3
10. I believe that boys should remain virgins until they marry.	1	2	3
11. It is sometimes justifiable for a boy to hit his girlfriend.	1	2	3
12. Most of my friends think that one-night stands are OK.	1	2	3
13. It's all right for boys and girls to have sex with each other provided that they use methods to stop pregnancy.	1	2	3
14. Most of my friends who have sex with someone use condoms regularly.	1	2	3
15. I am confident that I can insist on condom use every time I have sex	1	2	3
16. I would never contemplate having an abortion myself or for my partner.	1	2	3
17. It is mainly the woman's responsibility to ensure that contraception is used regularly.	1	2	3
18. I think that you should be in love with someone before having sex with them.	1	2	3
19. I feel that I know how to use a condom properly.	1	2	3
20. Most of my friends would never contemplate having an abortion for themselves or their partner.	1	2	3
21. Men need sex more frequently than do women	1	2	3

22. Most of my friends believe that you should be in love before you have sex with someone.	1	2	3
23. I would refuse to have sex with someone who is not prepared to use a condom.	1	2	3
24. One-night stands are OK	1	2	3
25. How many of your friends have had sexual intercourse? Would you say many, some, a few, or none?	Many		1
	Some		2
	A few		3
	None		4
	Not sure		8
26. Concerning gender identity, would you say you are:	Cisgender		1
	Transgender		2
	Other (specify		3
	Don't know/Not sure		88
27. Concerning sexual orientation, would you say you are:	Heterosexual		1
	Homosexual		2
	Bisexual		3
	Other (*specify* _____		4
	Don't know/Not sure		88

Cisgender: sense of gender corresponds with your biological sex

Transgender: sense of gender corresponds with opposite of your biological sex

Heterosexual: likes sex with opposite sex

Homosexual: likes sex with same sex

Bisexual: likes sex with both sexes

Menstrual Health Experience (*Females Only*)

1. Have you started seeing your menstruation	Yes	1
	No	2
2. At what age did you start your period	[ ][ ] years	
3. What is the duration of your period	<3 days	1
	3-5 days	2

	>5 days	3
4. How many days are there between the start of one period and the start of the next period (your cycle)	<21 days	1
	21-28 days	2
	29-35 days	3
	>35days	4
5. Is your cycle regular (same number of days between periods every time)?	Yes	1
	No	2
	Not sure	3
6. What do you use for your periods (to collect/absorb the menstrual flow) ***Circle all that apply***	Sanitary pad	1
	Tissue paper	2
	Tampon	3
	Cloth	4
	Menstrual cup	5
	Cotton wool	6
	Other (specify ……	7
7. Why do you use what you circled in Q6 for your period	I like it	1
	It is what my parent/guardian provides	2
	It is what I can afford	3
	It absorbs well	4
	It does not irritate my private part	5
	It prevents odour	6
	Other (*specify* ……	7
8. If you do not like what you use for your period, what would you like to use	I like it	1
	Sanitary pad	2
	Tissue paper	3
	Tampon	4
	Cloth	5

	Menstrual cup	6
	Cotton wool	7
	Other (specify ……	8
9. How often in a day do you change what you use for your period	[ ] time(s)	
10. Compared to other days, do you bathe more or less often during your menses	More often	1
	Same as on other days	2
	Less often	3
11. How do you dispose of your menstrual material	In the dustbin	1
	Burn it	2
	Throw into the toilet	3
	Throw into the bush	4
	Wash for reuse	5
	Other (*specify* ……	6
12. How do you get money for your menstrual needs	My parents/caregiver buy for me	1
	Pocket money from parents/caregivers	2
	From my work/trade	3
	From my boyfriend/manfriend	4
	I sleep with men to get money	5
	Other (*specify* ……	6
	From no one so I use rags	7
13. Do you have any of the following associated with your periods	Abdominal pain/cramps before menses	1
	Abdominal pain/cramps during menses	2
	Bloated feeling	3
	Pimples	4
	Breast pain and/or enlargement	5
	Headaches	6

	Irritability/Mood changes	7
	Feeling of being unwell	8
	Poor appetite/Vomiting/Diarrhoea	9
	Body odour	10
	Other (*specify* ……	11
	None	88
14. Did/does your mother/sisters experience similar symptoms/problem as you do during menstruation?	Yes	1
	No	2
	Don't know	3
15. From whom/where do you seek solution/treatment for menstrual issues	Parent/ other relative	1
	Girl Friend Boyfriend	2
	Neighbour	3
	Teacher	4
	Health care worker	5
	Chemist	6
	Internet	7
	Other (*specify* ----------	8
16. What is your feeling about sex during menses	It is acceptable	
	It is disgusting	
	My culture forbids it	
	My religion forbids it	
17. Has your period ever prevented you from any of the options (*please tick as many as apply*)	Engaging in household chores/cooking	1
	Going to school/work	2
	Attending religious activities	3
	Attending parties/social functions	4
	Sleeping over at a friend's house	5
	Engaging in sexual activity	6

	Other (*specify* ----------	7
	Other (*specify* ----------	8
18. Date of last menstrual period:	[ ][ ]/[ ][ ]/[ ][ ][ ][ ] (dd/mm/yyyy)	
19. Expected date of next menstrual period:	[ ][ ]/[ ][ ]/[ ][ ][ ][ ] (dd/mm/yyyy)	

Use and Perception of Quality of SRH Services at Adolescent Friendly Centre

1. What is the timing of SRH services at the facility	Regular clinic hours (8 am to 4 pm)	1
	Afternoon/evening clinic (from 3 pm)	2
	Weekend clinic	3
2. Is the time of the clinic:	Convenient	1
	Not convenient	2
	Not sure	3
3. If clinic time is not convenient, what time would you prefer	Regular clinic hours (8 am to 3 pm)	1
	Afternoon/evening clinic (from 3 pm)	2
	Weekend clinic	3
	Other (*specify* ----------	4
4. At this facility, did you see any posters on contraception/pregnancy/sexually transmitted infection	Yes	1
	No	2
5. Have you ever received brochures on contraception/ pregnancy/sexually transmitted infection	Yes	1
	No	2
6. Have you ever attended group sessions on: Contraception	Yes (1)	No (2)
Sexually transmitted infections	Yes (1)	No (2)
Pregnancy	Yes (1)	No (2)
7. During these sessions did you feel comfortable enough to ask questions	Yes	1
	No	2

8. Did you receive adequate answers to the question(s) you asked	Yes	1
	No	2
9. Are condoms available at your centre and discreetly placed so you could take if you wanted	Yes	1
	No	2
	Don't know	88
10. Have you ever requested for services or information on contraception, pregnancy, abortion, or sexually transmitted diseases in this facility	Yes	1
	No	2
11. How many times have you requested services or information from a doctor or a nurse for these services in the last twelve months?	Number of times [ ][ ]	
	Did not seek care in last 12 months	0
12. If 'yes', what service(s) did you seekWhen you last saw a doctor or a nurse for SRH issues, what was your reason for going?	Contraception	1
	STI treatment	2
	Gynaecological exam	3
	Pregnancy test	4
	Pregnancy termination	5
	SRH Counselling	6
	Other (*specify* ……..	7
13. Did you obtain the contraception services you requested for	Yes	1
	No	2
14. Did you feel that there was adequate confidentiality concerning your consultations/discussions with the healthcare worker	Yes	1
	No	2
	Not sure	3
15. Please comment on time spent at the facility for consultation/services	Services were delivered on time	1
	There was a long waiting time before consultation/services	2
	Cannot comment on time spent	3
16. How do you rate the friendliness of the healthcare workers at the facility	Very friendly	1

	Somewhat friendly	2
	Indifferent	3
	Unfriendly	4
	Very unfriendly	5
17. Number and cadre of health care workers at the youth friendly facility	Doctors	[ ][ ] (*number*)
	Nurses	[ ][ ] (*number*)
	Counsellors	[ ][ ] (*number*)
	Other (*spec* ----------	[ ][ ] (*number*)

Thank you for your participation

Appendix II: Study Consent Form

CONSENT FORM

Name of Principal Investigator: Agatha N. David

Institution: Clinical Sciences Department, Nigerian Institute of Medical Research, Lagos

Email: nkiru_d@yahoo.com

Phone Number: 08033220631

Title of the Research: Assessing the Sexual and Reproductive Health Needs of Adolescents and Young Adults with HIV in Lagos, Nigeria

Sponsor of Research: Self-sponsored

Purpose(s) of Research:

The purpose of this study is to assess the sexual and reproductive health (SRH) needs of adolescents and young adults (AYA) with HIV (AYAwH) in Lagos, Nigeria through their SRH knowledge, attitude, and behaviour. This study is the subject of a Ph.D. thesis in Public Health at the Lead City University, Ibadan.

The procedure of the Research (what shall be required of each participant, and the expected number of participants that would be involved in the research):

About 700 participants aged 14 to 24 years will be recruited for the study from the four study sites, namely Nigerian Institute of Medical Research, Yaba, Lagos University Teaching Hospital, Idi-Araba, Lagos State University Teaching Hospital, Ikeja, and Massey Street Children Hospital, Lagos Island. Each participant will complete a questionnaire with a set of questions on different aspects of sexual reproductive health, including knowledge and experience, with an interviewer on hand to provide guidance for the completion of the questionnaire.

Expected duration of research and of participant(s)' involvement:

The expected duration of the study is 12 months. However, interaction with each participant will occur only once.

Anticipated Risk(s) and Efforts to Minimize Risk(s):

This study entails the collection of information on sexual and reproductive health issues from the participants. Some of the questions may therefore be sensitive. However, names and other personal identifiers will not be collected and privacy and confidentiality will be strictly maintained. In addition, participants are free to decline to answer any question they feel very uncomfortable with.

Financial Costs to the Participants for Participation in the Research:

There shall be no financial cost to you for your participation in this study. Information will be collected when you come to the clinic for your routine clinic visit.

Benefit(s):

There is no direct benefit to you for participating in this study. However, findings from this study will contribute to the knowledge of the sexual and reproductive health needs of adolescents and young adults. This will in turn help to ensure that strategies are developed to meet these needs of young people.

Confidentiality:

Confidentiality will be maintained throughout the study. Study participants will not be required to provide their names or other personal identifiers, as each participant will be assigned a study identification number for study purposes.

Voluntariness and Alternatives to Participation:

Your participation in this study is entirely voluntary and you are free to withdraw at any point or decline to answer any question without any negative consequences. If you choose not to participate, this will not affect the care you receive from this facility in any way.

Due inducement(s):

No payment will be made to you for participation in this study.

Alternatives to Participation

If you choose not to participate, this will not affect your treatment in this hospital in any way.

Modality of providing treatments and action(s) to be taken in case of adverse event(s):

No treatments will be provided in the course of this study.

What happens to research participants and communities when the research is over?

Findings from this study will be made available to the management of each of the study sites, and recommendations can be integrated to improve SRH service delivery at the sites.

Statement about sharing of benefits among researcher(s) and whether this includes or excludes research participants:

No commercial benefits are expected from this study.

Any apparent or potential conflict of interest:

There are no apparent or potential conflicts of interest with regard to this study by any member of the study team.

Statement of the person obtaining informed consent:

I have fully explained this research to _____ and have given sufficient information, including about risks and benefits, to make an informed decision.

Name: _____ Signature: _____ Date: _____

Statement of the person giving consent:

I have read the description of the research or have had it translated to me. I have also talked it over with the research lead to my satisfaction. I understand that my participation is voluntary. I know enough about the purpose, methods, risks, and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. I have received a copy of this consent form and to keep for myself.

Name: _____ Signature: _____ Date: _____

Witness' Name (If Applicable): _____ Signature _____

Contact Information:

This research has been approved by the Institutional Review Board (IRB) of the Nigerian Institute of Medical Research, Lagos

1. Institutional Review Board, Ground Floor. Lab Complex
   Nigerian Institute of Medical Research, 6 Edmund Crescent, Yaba, Lagos.

   Phone: 08023513399 Email: nimr_irb@yahoo.com

2. Study Principal Investigator: Dr. Agatha N. David
   Phone: 08033220631 Email: nkiru_d@yahoo.com

PLEASE KEEP A COPY OF THE SIGNED INFORMED CONSENT.