KNOWLEDGE OF COMMON SYMPTOMS, RISK PERCEPTION AND TREATMENT BEHAVIOUR OF SEXUALLY TRANSMITTED INFECTIONS AMONG STUDENTS OF THE POLYTECHNIC, IBADAN, OYO STATE

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DEDICATION

This work is dedicated to God Almighty

the author and finisher

of every good work.

ABSTRACT

Current evidence shows that the surge of Sexually Transmitted Infections (STIs) is of public health importance. In Nigeria, about 3 million cases of STIs are reported annually with the highest rates observed among young people. Most studies done in the past among students in tertiary institutions were conducted in health facilities and among university students; there is a dearth of information on STIs among polytechnic students. Therefore, this study was designed to investigate the knowledge of common symptoms, risk perception and treatment behaviour of STIs among students of The Polytechnic, Ibadan.

The study was a descriptive cross-sectional survey which involved the use of a four-stage sampling technique to select 401 students from 10 Departments across the five Faculties of the Institution. A quantitative method of data collection was adopted. A validated self-administered semi-structured questionnaire developed from relevant literatures was used to obtain data on socio-demographic characteristics, knowledge of STIs, risk perception, sexual behaviours and treatment preferences of the students. Overall knowledge of STIs was assessed using a 14-item instrument with a total score of 20, scores ≤ 9 were categorised as poor while scores ≥10 were categorised as good. Data were analysed using descriptive statistics and Chi square tests at p=0.05 level of significance

Respondents' mean age was 22.0±3.4 years, 61.8% were males and almost all (95.0%) were single. Only 11.5% of the students had knowledge of at least two common symptoms of STIs. Few (18.7%) had good knowledge of STIs with overall mean knowledge score of 5.9±3.6. Only few (14.2%) considered themselves to be at risk of contracting STIs. Majority (65.3%) were sexually active in the last 12 months; while 26.7% of all the students had slept with more than one person in the last six months. Only 23.1% of single sexually active students used condom regularly. About 18.7% of the students had experienced one or more STI symptoms in the last 12 months; the most prevalent being pain during urination (7.7%). Majority (73.3%) reported that they would visit a health facility for treatment if they contracted an STI; majority (67.6%) also said they would act within one week. There were no significant associations between gender and knowledge of common STI symptoms; and between condom use and risk perception

of contacting STIs. However, there were significant associations between gender and reported prevalence of STI symptoms; and between having multiple sex partners and the risk perception of contracting STIs.

Knowledge and risk perception of STIs was low, STIs and risky sexual behaviours existed among students, and majority will prefer to adopt the appropriate STI treatment behaviour if they become infected. These results emphasise the need to provide students with more information about STIs with the aim of influencing their self-perceived risk and sexual behaviour. Also, practicable steps should be taken to address factors that may prevent young people from adopting appropriate treatment behaviours.

Keywords: Sexually Transmitted Infections, Young people, Sex partner, Risk perception, Common symptoms

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CERTIFICATION

I certify that this project was carried out by **OHARUME**, Irikefe Mark in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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LIST OF ABBREVIATIONS

AIDS	-	Acquired Immuno Deficiency Syndrome
ARFH	-	Association for Reproductive and Family Health
CBOs	-	Community Based Organisations
CCP	-	Centre for Communication Programmes (Johns Hopkins)
CDC	-	Centre for Disease Control and Prevention
FGD	-	Focused Group Discussion
HB	-	Hepatitis B
HBM	-	Health Belief Model
HIV	-	Human Immuno Deficiency Virus
HPV	-	Human Papiloma Virus
HSV	-	Herpes Simplex Virus
KAP	-	Knowledge, Attitude and Practice
MUDS	-	Male Urethral Discharge Syndrome
NARHS	-	National HIV/AIDS and Reproductive Health Survey
NDHS	-	Nigeria Demographic and Health Survey
NGOs	-	Non-Governmental Organisations
NPC	-	National Population Commission
PMV	-	Patent Medicine Vendor
RH	-	Reproductive Health
SPSS	-	Statistical Package for Social Sciences
STDs	-	Sexually Transmitted Diseases
STIs	-	Sexually Transmitted Infections
UNAIDS/PCB	-	Joint United Nations Programme on HIV/AIDS Programme Coordinating Board
UNFPA	-	United Nations Population Fund
VD	-	Venereal Disease
VDS	-	Vaginal Discharge Syndrome
WHO	-	World Health Organisation
WHO/RHR	-	Department of Reproductive Health and Research
ZNFPC	-	Zimbabwe National Family Planning Counci

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The World Health Organization (WHO) has labeled three diseases as the greatest enemies of mankind; Malaria, Tuberculosis and Sexually Transmitted Diseases (STDs). STDs have a profound impact on sexual and reproductive health worldwide, and rank among the top 5 disease categories for which adults seek health care (Gupta and Mahajan, 2003; Olivi, Santana and Mathias, 2008; Govender & Eche, 2012).

Before 1974, STDs were referred to as Venereal Diseases (VD) derived from the word Venus, the name for the goddess of love. Venereal diseases were diseases transmitted through sexual intercourse, but in rare cases they can be transmitted indirectly, for example, through towels as in the case of Vulvovaginitis in young female children. However, due to the stigma attached to the label VD, the WHO in 1974 rephrased the nomenclature to STD, this change made it possible to include several other diseases where sex play an important role (Gupta and Mahajan, 2003).

The terms Sexually Transmitted Diseases and Sexually Transmitted Infections (STIs) are usually used interchangeably, however similar they may seem they do not mean the same thing and can lead to confusing and inaccurate interpretations. It is therefore necessary to understand the difference between both terms. The concept of "disease," as in STD, suggests a clear medical problem, usually some obvious signs or symptoms. But several of the most common STDs have no signs or symptoms in the majority of persons infected. Or they have mild signs and symptoms that can be easily overlooked. So the sexually transmitted pathogen can be described as creating "infection," which may or may not result in "disease." This is true of chlamydia, gonorrhea, herpes, and Human Papilloma Virus (HPV) infections in some people, to name a few. For this reason the term STI is used to refer to infections with any germ that can cause a STD even if the infected person has no clear symptoms or symptoms at all. The term STI is therefore more appropriate and it implies that most of the time people do not know that they are

infected with an STI until they start showing symptoms of the disease or in some cases until complications due to chronic infection with the STI agent set in (WHO, 2003; Rai, Aggarwal, & Kandpal, 2011).

It will be difficult to successfully list all the types of STIs as the list will be extensive; a good way to classify them therefore is to do so according to their causative agents. There are generally four types of agents that can cause STIs (Park, 2009);

- **Bacterial agents:** Gonorrhea, Chlamydia, Shigella, Vaginosis, Sexually transmitted syphilis, Soft Chancre, Lymphogranuloma vernereum, etc.
- **Viral agents:** HIV/AIDS, Herpes, Hepatitis-B, Human Papiloma Virus (HPV), etc.
- **Protozoan agents:** Entamoeba hystolytica, Giardia lamblia, Trichomonas vaginalis, etc
- **Ectoparasites:** Pubic lice, Sarcoptes scabei

Early identification of STIs is not always possible because most cause no symptoms, for example, Chlamydia, HIV, Hepatitis-B and Gonorrhoea often have no noticeable symptoms in some gender. However, others may cause discomfort or pain in affected reproductive organs and if not properly treated some can cause Pelvic Inflammatory Disease, infertility, chronic pelvic pain and cervical cancer (FMOH, WHO & UNFPA, 2011). STIs also generally increase the chances of becoming infected with HIV (Govender & Eche, 2012; Mmari, Oseni & Fatusi, 2010; Mhlongo, Magooa, Müller, Nel, Radebe, Wasserman & Lewis, 2010; WHO/RHR & John Hopkins/CCP, 2011). Moreover the symptoms of many STIs are not clearly defined and in other cases there are multiple infections and the symptoms overlap.

To help detect STIs early, the common signs for symptomatic ones are;

- Discharge from the penis; pus, clear or yellowish green drops
- Abnormal vaginal bleeding or bleeding after sex.
- Burning or pain during urination.
- Lower abdominal pain or pain during sex.
- Swollen and/or painful testicles.

- Itching or tingling in the genital area.
- Blisters or sores on the genitals, anus, surrounding areas or mouth.
- Warts on the genitals, anus, or surrounding areas
- Unusual vaginal discharge- changes from normal vaginal discharge in colour, consistency, quantity, and/or odour. (Park, 2009; Lucas & Gilles, 2003; WHO/RHR & John Hopkins/CCP, 2011).

STIs have been reported to constitute a significant cause of morbidity and mortality worldwide, particularly in developing countries. However, their importance had not been realized till only recently, in the wake of the HIV epidemic. The burden of STIs is high worldwide in terms of their associated morbidity, mortality and socio-economic impact with Sub Saharan Africa having a greater share of this proportion (Ministry of Health Uganda, 2003). With the Youths constituting the majority of the population in Sub Saharan Africa the magnitude of the problem cannot be overemphasized.

Knowledge about an infection is assumed to effect individuals' attitudes toward potential risk and thus their risk perceptions, which are in turn assumed to influence behaviours associated with that risk, such as engagement in prevention strategies. However studies have shown that knowledge of young people on STIs is not yet adequate. For example, a study conducted in Nigeria among patients attending an outpatient clinic revealed that knowledge was relatively low among the adolescents and the youths who are the future of any nation compared to older age groups (Adegun, Solomon, Adegoke, Ade-Ojo, & Fape, 2013). This suggest that there is need to create more awareness on STIs as well as increase the opportunities to assess quality STI health care services for young people.

Young people are disproportionately affected by STIs because of their engagement in unsafe sexual practices such as multiple sexual partnerships, casual sex and inconsistent condom use (Kiapi-Iwa & Hart, 2004). Evidences show that worldwide more than three million people are newly infected with STIs annually and 70% of the infections occur among young people (CDC, 2008). Demographic and Health surveys conducted in 20 countries in Sub-Saharan Africa revealed that up to 11% of female and about 16% of

male adolescents reported that they had had an STI in the preceding 12 months of the study (Bankole, Singh, Woog, Wulf, 2004).

Providing relevant information about STIs and availing the necessary health services is a highly desirable and effective intervention in the prevention and control of STIs. However, the sexual and reproductive health needs of young people are often unmet in developing countries (Lewis, Latif and Ndowa, 2007; Kadiri, Ahmad & Mustaffa, 2014). Several studies have revealed that adolescents knowledge of STIs and STI symptoms are low. There is also low utilization of health services and poor treatment behaviours for the management of STIs among this group. For instance, a study among adolescents in Ethiopia by Cherie & Berhane (2012) showed that treatment behaviour among adolescents was very poor. This further emphasises the need why efforts should be geared towards improving the knowledge of young people on STIs so as to enable them adopt effective preventive behaviours, to detect symptoms early and take appropriate treatment steps.

1.2. Statement of Problem

Globally, the total number of new cases of four STIs (Chlamydia trachomatis, Neisseria gonorrhoeae, Syphilis and Trichomonas vaginalis) in 2008 in adults between the ages of 15 and 49 was estimated to be 498.9 million. For Africa, the total number of new cases of the four STIs was estimated to be 92.6 million. (WHO, 2012). The implication is that Sub-Saharan Africa is home to more than one-sixth (18%) of the world's burden of STIs.

The prevalence of STIs in Nigeria is not known but hospital based studies have shown high levels of prevalence of various types of STIs including gonorrhoea, syphilis, chlamydia, genital herpes and trichomoniasis (Okonko, Akinpelu & Okerentugba, 2012a; Omobude-Idiado & Bazuaye, 2009; Aboyeji & Nwabuisi, 2003). Moreover, a national survey (NARHS Plus, 2007) on STI prevalence showed an STI prevalence of 10.6% among females and 3.4% among males (FMOH, 2008). According to the 2013 NDHS, the reported prevalence of STIs among sexually active respondents was 8% for women and 4% for men (NPC & ICF International, 2014).

The numbers of children and young people in the less developed regions of the world are at an all time high of 1.7 billion children and 1.1 billion young people with children under age 15 accounting for 26% of the population and young persons aged 15 to 24 accounting for a further 17% (UNFPA, 2013). It has been reported that the incidence of STIs decline with age and that adolescents and young adults experience the highest risk of exposure to STIs (Anwar, Sulaiman, Ahmadi & Khan, 2010). For example, it is estimated that of the more than 15 million new cases of sexually transmitted infections diagnosed each year in the U.S, approximately one-fourth of these new infections occur among teenagers (CDC, 2000; Weinstock, Berman & Cates, 2004). A survey in South East England revealed that almost two-thirds of STIs (62%) diagnosed was among young people aged between 15and 24 years old (Health Protection Agency, 2012).

In Nigeria, the NDHS 2013 showed a reported prevalence of STIs that was as high as 6.1% among young people age 15-24 years (NPC & ICF International, 2014). Other studies done among adolescents have also reported high prevalence of STIs (Okonko et al., 2012a; Okonko, Okerentugba, Adejuwon, & Onoh, 2012b).

Poor knowledge of STIs and STI symptoms have been reported among adolescents and young people in various studies. According to a study conducted among adolescents in Ethiopia, only 17.9% had knowledge of at least two symptoms of STIs (Cherie & Berhane, 2012). According to another study conducted in a University Teaching Hospital in Nigeria, knowledge of STIs was 53.4% among respondents in the age category of 24 years and below, this was lower than other age groups in the study (Adegun et al., 2013). This implies that the Knowledge of common STI symptoms is not yet optimum among young people both globally and in Nigeria, it is therefore necessary to continue to increase efforts in areas of research that can augment and increase their knowledge level. This is important because of the large proportion of young people in the world today.

The number of adolescents in Sub-Saharan Africa is increasing, and the adolescent population in Nigeria is no exception. With a population of over 160 million, young people (10-24 years) constitute almost a third (31.7%) of the population (FMOH/UNFPA/WHO, 2011). Along with the increasing population of young people in

Nigeria, available evidence suggests that there are many social and reproductive health problems that have demonstrated no signs of subsiding. Early premarital sexual activity among young people is on the increase, due in part to the changing social structure of young people as well as the behavioral choices that come along with this transformation (Crommett, 2008). According to the 2013 NDHS, the median age at first sexual intercourse for women aged 25-49 years is 17.6 years, for men, it was 21.1 years. However, according to same study, 24% of women reported that they had sexual intercourse by age 15 and 54 percent by age 18. While 3% of men reported having had sexual intercourse by age 15 and 19% by age 18 (NPC & ICF International, 2014). Also, among young people aged 15-24 years, only a tenth of females and a fifth of males were involved in protected sex at their first sexual intercourse (FMOH, 2008). In line with this, results from a study conducted among youths in Lagos, Nigeria showed high awareness about STIs and HIV/AIDS but low level of contraceptive practices among the majority of youths in the study area. It was found that many of the youths engaged in risky sexual behaviour with a high prevalence of unprotected sexual intercourse (Atere, Wahab, Ajiboye, Shokoya, Akinwale & Oyenuga, 2010).

To understand how best to promote STI treatment among young people in Nigeria, it is critical that we understand their treatment-seeking behaviors. In particular, we need to know the proportion of adolescents who seek treatment for STIs and where they go to seek treatment. In Nigeria, very few studies have been conducted to examine these issues. From the few that exist, the evidence suggests that the majority of infected adolescents receive no treatment or inadequate treatment (Ogunbanjo, 1989). According to another study, 43% of young women who tested positive for an STI had not received any treatment; moreover, although vaginal itching was frequently reported, fewer than 3% of female adolescents had sought treatment of any kind, including traditional medicine (Brabin, 1995).

The Polytechnic Community is constituted by mainly young people and the practices of cohabitation, having sex with older partners, having sex with non-steady partners, having unprotected sex and poor treatment preferences for STIs are common practices among students of tertiary institutions. These risk factors have led to the spread of STIs in

tertiary institutions in Nigeria especially as some of these infections are asymptomatic. For example, a retrospective study in a Nigerian University which analyzed the patterns of Sexually Transmitted Infections (STIs) among 38,933 students who attended the University Health Centre from 2001 to 2005 showed that 1.8% of the students had STIs (Omobude-Idiado & Bazuaye, 2009). Another study conducted in the Medical Centre of a University in Nigeria showed that of the two hundred (200) participants, 190 females and 10 males involved in the study, 195 (97.5%) were infected with various STI agents (Okonko et al., 2012b). Cohabitation has also been found to be associated with the spread of STIs among students of tertiary institutions, and according to Ogunsola (2012) and Ogadimma (2013), cohabiting students will most likely engage in unprotected sex which could result to sexually transmitted infections and HIV/AIDS.

1.3. Justification for the Study

Studies that have been done on the knowledge of STIs among the target group in Nigeria have shown that young people have an appreciable level of knowledge on STIs (Adegun et al., 2013; Makwe & Ahmad, 2014; Atere et al., 2010). However, none of them have been focused on knowledge of symptoms of STIs which is one of the most important prerequisites for seeking treatment timely. One of the objectives of this study is to assess the knowledge of respondents on common STI symptoms.

Prompt and complete treatment is an important prerequisite for the control of STIs, therefore assessing factors that influence STI treatment behaviours of young people is pivotal in informing practice, policy and design of appropriate interventions. However, most studies on STIs are focused only on prevalence (Desai, Kosambiya, Thakor, Umrigar, Khandwala & Bhuyan, 2003; Mhlongo, Magooa, Müller, Nel, Radebe, Wasserman & Lewis, 2010; Adegun et al., 2013; Prabhakar, Narayanan, Deshpande, Das, Neilsen, Mehendale & Risbud, 2012; Okonko et al., 2012a; Okonko et al., 2012b), only a few focused on STI and STI treatment behaviour (Atere et al., 2010; Cherie & Berhane, 2012). One of the objectives of this research is to investigate treatment preferences of respondents with respect to STIs. This will give an insight to the factors influencing STI treatment practices among young people and also add value to literatures in the field of health promotion and education on STIs.

In order to develop an effective school based prevention education programme for the control of STIs in the school Community, it is paramount to determine the commonly reported STI symptoms and their patterns of distribution among male and female students. This research will go a long way in generating data that will aid planning for such programmes.

Furthermore, previous studies done on STIs in Nigeria were conducted among people visiting health facilities (Omobude-Idiado & Bazuaye, 2009; Okonko et al., 2012a; Okonko et al., 2012b; Adegun et al., 2013). However, majority of STI victims do not visit health facilities and are usually missed during such studies. Therefore results from such studies do not usually reflect the actual situation on ground. This study is done outside the health facility and will therefore reduce the chances of missed opportunities and help in generating results that are more generalizable on the target population.

Lastly, studies done on STI among students of tertiary institutions were done among university students. Polytechnic students have slightly different characteristics from their university counterparts especially because of the nature of their programmes. This study was conducted among Polytechnic students and will therefore fill this gap. It will also add to literatures that will be useful for future research among the same target group. Data generated will also be useful in designing programmes for the control of STIs in Polytechnics.

1.4. Research Questions

1. What is the knowledge level of respondents towards common STI Symptoms?
2. What is the risk perceptions of STIs among respondents?
3. What are the risky sexual practices of respondents that can predispose them to STIs?
4. What is the reported prevalence of common STI Symptoms among respondents?
5. What treatment behaviour will respondents prefer to adopt if they start experiencing STI symptoms?

1.5. Research Objectives

Broad Objective: To investigate the Knowledge of common symptoms, risk perception and treatment behaviour of STIs among students of The Polytechnic, Ibadan, Oyo State.

Specific Objectives;

1. To assess the knowledge level of respondents towards common STI Symptoms.
2. To determine the risk perception of STIs among respondents.
3. To document risky sexual practices of respondents that can predispose them to STIs.
4. To document the reported prevalence of STI Symptoms among respondents.
5. To identify the treatment behaviours that respondents will prefer to adopt if they start experiencing symptoms of STIs.

1.6. Hypotheses

1. There is no association between the gender of respondents and their knowledge level of common STI symptoms.
2. There is no association between the gender of respondents and the prevalence of common STI symptoms among them.
3. There is no association between rate of condom use among respondents and their risk perception of contracting STIs.
4. There is no association between respondents' perception of the risk of having multiple sex partners and the practice of having multiple sex partners.
5. There is no association between the reported experiences of STIs among respondents and their risk perception of contracting STIs.
6. There is no association between the practice of having multiple sex partners among respondents and their risk perception of contracting STIs.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of STIs

The World Health Organization recommends that the term sexually transmitted disease (STD) be replaced by the term sexually transmitted infection (STI) as it better incorporates asymptomatic infections and has therefore been adopted by a wide range of scientific societies and publications since 1999 (WHO, 2003). STIs as the name implies are infections caused by pathogens that can be acquired and passed from person to person through intimate sexual activity. However, not all STIs are consequences of sexual transmission as some such as HIV, Hepatitis-B, Gonorhoea, Chlamydia, Genital herpes, Syphilis, can be transmitted through non-sexual means especially from mother to child during delivery. Hepatitis-B and HIV can be transmitted through blood transfusion and sharing of sharp objects like clippers, injections and blades (Parks, 2009). The general feature of all STIs is their ability to be transmitted through sexual means.

Sexually transmitted infections (STIs) are a major global cause of acute illness, infertility, long-term disability and death with serious medical and psychological consequences for millions of men, women and infants (WHO, 2012). They have been found to be one of the most common causes of illness throughout the world and have been ranked among the top five diseases in developing countries for which adults seek health care services (Buve, Laga & Piot, 1993; Dyck, Meheus & Piot, 1999; WHO, 2007; Usanga, Abia-Bassey, Inyang-etoh, Udoh, Ani & Archibong, 2010).

STIs are infectious and transmissible, as such, effective public health interventions are necessary to break the chain of transmission. However, STIs are also preventable and many are curable. The realization that the serious consequences of STIs can be averted through preventive interventions and effective case management renders it incumbent on all public health managers to accord to high priority to STD control.

2.1.1. Types of STIs

The list of sexually transmitted pathogens has expanded from the five classical venereal diseases (syphilis, gonorrhea, chancroid, lympho granuloma venereum and donovanosis) to include more than twenty agents; also attention is now given not only to specific infections but also to clinical syndromes associated with STIs (Parks, 2009). There are about thirty STIs that have been identified; however, the most common ones and their causative pathogens are;

Bacteria

- Gonorrhea (Neisseria gonorrhoeae)
- Chlamydia (Chlamydia trachomatis)
- Syphilis (Treponema pallidum)
- Chancroid (Haemophilus ducreyi)

Viruses

- Genital warts and cervical cancer (human papilloma virus)
- Genital herpes (herpes simplex virus)
- Hepatitis B (hepatitis B virus)

Parasites

- Trichomoniasis (Trichomonas vaginalis)
- Pubic lice (Phthirus pubis). (Lucas & Gilles, 2003; Park, 2009; WHO, 2011)

2.1.2. STI Syndromes

Most of the symptoms for symptomatic STIs are not usually specific to any particular STI. In most cases the clinical presentations of one STI are similar to another. For instance the common symptoms of Gonorrhoea infection for males are urethral discharge, pain during urination and swollen testicles, these symptoms are also associated with Chlamydia infection (WHO/RHR & John Hopkins/CCP, 2011). Also STI co-infections are common and clinical presentations can therefore not be tied to a particular STI in such cases (Mhlongo et al. 2010). In addition, the prevalence and incidence of STIs is greatest in areas that lack the trained personnel and advanced equipment for accurate

diagnoses and treatment. Therefore, in 1990, the World Health Organization (WHO) developed a set of eighteen binary algorithms to be used by Health Care Providers in diagnosing the presence of STIs. This laid the groundwork for the syndromic approach to STIs which is based upon the premise that there are strong correlations between the clinical presentations of STIs and the presence of a particular pathogen or pathogens. Thus, the health care provider diagnoses and treats STIs based primarily on the history and physical diagnosis, rather than upon evidence obtained from laboratory tests or microscopy (Gergen, Wilkins, Ragunathan & Walsh, 2000; WHO, 2003)

The STI-Associated syndromes in the WHO guideline include;

- Urethral discharge
- Genital ulcer
- Scrotal swelling
- Vaginal discharge
- Lower abdominal pain, and
- Neonatal conjunctivitis (WHO, 2003).

The rationale behind the syndrome approach is based on the fact that the signs and symptoms of the various STIs are not specific making accurate clinical diagnosis difficult. For example a study by Dangor, Ballard, Da Exposto, Fehler, Miller & Koornhof, (1990) showed that only about 70% of single infections of genital ulcer disease are correctly diagnosed clinically. Another report of a study in Nairobi, Kenya, showed that only 40% of chancroid and 24% of syphilis infections were correctly diagnosed clinically (Ndinya-Achola, Kihara, Fisher, Krone, Plummer, Ronald & Holmes, 1996). Laboratory-confirmed etiological diagnosis is the usual approach used in the management of many diseases and is therefore considered ‘scientific’ by many doctors. However, this approach is expensive and could lead to delays in diagnosis. Furthermore, Laboratory support is often unavailable in many resource-poor countries or may be located in the urban centres and thus serve a limited segment of the population. Patients may also have to travel long distances from peripheral health centres to specialist or laboratory facilities in cities. In addition, many patients with STIs have mixed infections. The limitations of clinical diagnosis without tests and laboratory-based

etiological diagnosis have provided more bases for the syndromic approach (Bosu, 1999; Wolday, G-Mariam, Mohammed, Meles, Messele, Seme, Geyid & Maayan, 2004; Casey, Rutledge, Johnson, Boyd, Starr & King, 2010).

2.1.3. Common Symptoms of STIs

There are many different STIs and there are also many signs and symptoms that indicate the presence of one or more, but sometimes, there are no signs at all and this is true with many STIs; typical examples are gonorrhea and Chlamydia infections in women (WHO/RHR & Johns Hopkins/CCP, 2011). When STIs do produce symptoms, they usually develop on the genitals and they are often mistaken for something else, such as urinary tract infection or yeast infection.

Generally, the symptoms of STIs can include:

- A drip or discharge from the penis, urethra, vagina, or anus. The color may be white, yellow, green, or gray. The discharge may be blood-streaked, and it may or may not have a strong odor.
- Genital and/or anal itching or irritation.
- A rash, blisters, sores, lumps, bumps, or warts on or around the genitals, anus, or mouth.
- Burning or pain during urination.
- Swollen lymph glands in the groin.
- Pain in the groin or lower abdomen.
- Pain or swelling of the testicles.
- Swelling or redness of the vagina.
- Flu-like symptoms (such as fevers, and chills).
- Painful sex.
- Bleeding from the vagina other than during a monthly period (FMOH, WHO & UNFPA, 2011; Ministry of Health Uganda, 2003).

Table 2.1: Signs, symptoms and consequences of common STIs

S/N	Infections	Symptoms	Consequences
1	Gonorrhoea	• Symptoms begin 2-21 days after infection • Discharge from penis or vagina • Pain/burning sensation during urination • Lower abdominal (pelvic area) pain • Most women have no symptoms	• Damage to reproductive organs • Sterility/infertility • Eye infection/Blindness in babies of infected mothers • Transmission of infection to sexual partners • Increased risk of ectopic pregnancy
2	Syphilis	**1st Stage** **Symptoms begin 1-12 weeks after infection** • Painless, open sore on the mouth or sex organ; • Sore goes away after 1-5 weeks **2nd Stage** **Symptoms begin 1-6 months after sore appears;** • Non-itchy rash on the belly • Flu-like symptoms **3rd Stage** No visible symptoms, but there may be cardiac and neurological damages	• It can cause heart disease, brain damage, blindness and death. • Can be transmitted from a pregnant woman to her unborn child
3	Herpes	**Symptoms begin 2-30 years after infection** • Flu-like feelings • Painful blister-like lesions on or around the genitals or in anus or mouth • Itching and burning around the sex organs before the blister appears. • Blisters last 1-3 weeks • Blisters disappear but the individual still has herpes and blister may reoccur.	• Recurring outbreaks • There is no cure for herpes
4	Chlamydia	**Symptoms begin 7-21 days after infection** • Discharge from the genitals • Burning or pain while urinating • Unusual bleeding from the vagina • Pain in the pelvic area **Note:Most women and some men have no symptoms**	• It can cause damage to reproductive organs. • It can cause sterility • It can be transmitted from mother to child during child birth
5	Trichomoniasis (Has been severally called "Toilet disease" in Nigeria)	**Symptoms begin 7-21 days** • Increased vaginal discharge • Discharge is frothy-yellowish green in colour • Itching • Pain during urination	• It may cause low birth weight babies. • It may cause premature labour in pregnant women.

Source: FMOH, WHO & UNFPA, 2011

The symptoms of many STIs may not be specific but generally the symptoms are easily identifiable especially once there is a history of risky sexual behaviour. There are many STI symptoms however, two are very common with most STIs and these have been used effectively to determine the reported prevalence of STIs in most population surveys.

The two common symptoms that have been used as proxies for STI symptoms are;

- Abnormal genital discharge which is usually accompanied by a foul smell, and
- Genital sore or ulcer (FMOH, 2006; FMOH, 2008; Mmari et al., 2010; NPC & ICF International, 2014)

However, four STIs: Chlamydia, Gonorrhoea, Syphilis and Trichomoniasis have been found to be prevalent among adults aged 15-49 years (WHO, 2011; WHO 2012). One common symptom associated with three (Chlamydia, Gonorrhoea and Trichomoniasis) of these four STIs is '**pain during urination**' (WHO, 2007; FMOH, WHO & UNFPA, 2011; Health Protection Agency, 2012). This symptom has therefore been added as the third proxy for STI symptoms in this study.

Therefore the three common symptoms used as proxies for STI symptoms in this study are:

1. **A bad-smelling, abnormal discharge from the vagina or penis;**
2. **Genital sore/ulcer or blister; and**
3. **Pain during urination**

2.1.4. Mode of Transmission of STIs

There are over 30 bacterial, viral and parasitic pathogens that have been identified to date that can be transmitted sexually and which are generally present on the genitalia and in the secretions and discharges from the penis, urethra and vagina (Park, 2009). They can also be found in extra-genital lesions occurring through haematogenic dissemination as in syphilis or through inoculation of the infective agent at extra-genital sites such as the mouth and throat. The most important infective agents for STIs include viruses, bacteria and protozoans with man as the primary reservoir; therefore transmission is mainly through direct close sexual contact including vaginal, anal and oral sex. It is not uncommon for patients especially among young people to claim that they contracted an

STI through some indirect contact such as toilet seat; such a route is extremely unlikely, and they will usually admit to sexual exposure once confidentiality has been established (Lucas & Gilles, 2003).

The organisms causing STIs can also be spread through non-sexual means such as when doctors, dentists or midwives accidentally handle infected blood products and tissues. Many STIs including chlamydia, gonorrhoea, hepatitis B, HIV, HPV and syphilis can also be transmitted from mother to child during pregnancy and childbirth (WHO, 2003). Transmission can also occur through extra-genital sexual contact such as through kissing. Formites such as infected moist clothing like wet towels can transmit vulvovaginitis to pre-pubescent girls (Lucas & Gilles, 2003; WHO, 2013).

Sexual behaviour also influences the rate of transmission of STIs, and such behaviours include;

- Being sexually active at an early age
- Having sex without using a condom
- Sex with a partner who has STI symptoms
- A sex partner who has recently been diagnosed with or treated for an STI
- Sex with more than one partner; the more the partners, the more the risk
- Sex with a partner who has sex with others and does not always use condoms
- Where many people in the community are infected with STIs, sex without a condom may be risky with almost any new partner (WHO/RHR & John Hopkins/CCP, 2011).

2.1.5. Complications of STIs

Sexually transmitted infections have produced tremendous health consequences all over the world. Untreated or poorly treated STIs lead to very serious complications particularly among women where they are associated with adverse reproductive health consequences (WHO, 2001; Mmari et al., 2010; Govender & Eche, 2012). Among children STIs cause blinding eye infections, congenital malformation, premature deliveries, low birth weight, growth retardation, mental sub-normality, etc.

Among men and women, they can lead to secondary infertility and chronic debilitating conditions such as;

- Blockage of the fallopian tubes which can lead to infertility and ectopic pregnancy.
- Pregnancy loss and increased newborn deaths caused by transmission of the infection to the infant during pregnancy and childbirth.
- Genital cancers for males and females, and
- Enhanced transmission of HIV/AIDS (Ministry of Health Uganda, 2003; WHO, 2011).

Besides, the psychological impact of having a sexually transmitted disease can be severe. Some persons become depressed or anxious. They fear recurrent outbreaks, transmission to sex partners, and encounter difficulties in developing new relationships.

2.1.6. Treatment of STI

STIs caused by bacteria, protozoa, ecto-parasites and fungi can be treated; three bacterial STIs (chlamydia, gonorrhoea and syphilis) and one parasitic STI (trichomoniasis) are generally curable with existing, effective single-dose regimens of antibiotics. Viral STIs however cannot be treated; the symptoms and complications can only be treated and/or managed.

For herpes and HIV, the most effective medications available are antivirals that can modulate the course of the disease, though they cannot cure the disease. For hepatitis B, immune system modulators (interferon) and antiviral medications can help to fight the virus and slow damage to the liver. It is worthy to note that safe and highly effective vaccines are available for two viral STIs: Hepatitis B and Human Papilloma viruses (HPV). These vaccines have represented major advances in STI prevention (Gupta & Mahajan, 2003; Lucas & Gilles, 2003; WHO, 2013).

2.1.7. Prevention/Control of STIs

The basic strategies for preventing STIs involve avoiding or reducing the chances of exposure to the infection and its agents through abstinence from sex, being faithful to one infection-free partner and consistent use of condom during sex. Control of STIs will be more effective if infected individuals get accurate diagnosis and proper treatment for themselves as well as all traceable sex partners. This will not only reduce the prevalence of STIs in the society but it will also reduce the incidence. The aim of any control programme for STIs is the prevention of ill health resulting from the infections through various interventions. These interventions usually have a primary prevention focus (prevention of the infection), a secondary prevention focus (minimizing the adverse health effects of the infections through medical treatment), or a combination of the two (Park, 2009).

Effective prevention and control of STIs can be achieved using a combination of responses constituting the **"public health package"**. The public health package for STI prevention and control include the following essential components;

- Promotion of safer sexual behaviour
- Condom programming; encompassing a full range of activities from condom promotion to the planning and management of supplies and distribution
- Promotion of health care-seeking behaviour
- Integration of STI prevention and care into primary health care, reproductive health care facilities, private clinics and others
- Specific services for populations at risk; such as female and male sex workers, adolescents, long-distance truck drivers, military personnel and prisoners
- Comprehensive case management of STI
- Prevention and care of congenital syphilis and neonatal conjunctivitis
- Early detection of symptomatic and asymptomatic infections (WHO, 2003; Casey et al., 2010)

2.2. Relationship between STIs and HIV/AIDS

HIV is clearly a major cause of premature death, and most cases are the result of sexual transmission. Other STIs cause considerable morbidity, particularly in relation to reproductive health of women, and are also associated with increased transmission of HIV (Ministry of health Uganda, 2003; Olivi, Santana, & Mathias, 2008; Anwar et al., 2010; WHO, 2011). The importance of STIs has been raised very recently when they were found to be a factor that increases the risk of sexual transmission of HIV infection (WHO/RHR and John Hopkins/CCP, 2011). This fact has been demonstrated in many epidemiological and biological studies (Tobian & Quinn, 2009; Mhlongo et al., 2010; Prabhakar et al., 2012).

Many symptomatic STIs enhance the transmission of HIV though increased viral shedding as well as providing a weakened barrier for acquisition of HIV (Ministry of health Uganda, 2003). In addition, a report by the Department of Reproductive Health and Research of the WHO revealed that Syphilis infection may increase the HIV viral load of co-infected patients, and may increase the risk of mother-to-child transmission of HIV (WHO, 2011).

Strong evidence supports several biological mechanisms through which STIs facilitate HIV transmission by increasing both HIV infectiousness and HIV susceptibility. Thus if the incidence/prevalence of STIs is high in a country, there is a high risk of sexual transmission of HIV (Sychareun, Thomsen, Chaleunvong, & Faxelid, 2013). A study conducted in South Africa on STI/HIV co-infections among patients with Urethral and Vaginal discharge syndromes is quite revealing as gonorrhea was associated with a positive HIV serostatus; a positive Syphilis and HSV-2 serostatus was also strongly associated with HIV infection in both Male Urethral Discharge Syndrome (MUDS) and vaginal Discharge Syndrome (VDS) patients (Mhlongo et al., 2010).

The above evidences clearly show that prevention and treatment of sexually transmitted diseases can be important in any HIV prevention strategy. Effective case management of STIs not only reduces viral shedding in genital secretions, but was demonstrated in a community randomized longitudinal study in Mwanza region of Uganda to reduce HIV

incidence by 42% (Ministry of Health Uganda, 2003). AIDS control programmes are now being integrated with broader STD programmes in an attempt to address these significant public health problems.

2.3. Global Epidemiology of STIs

More than 1 million people acquire a sexually transmitted infection every day. Each year, an estimated 500 million people acquire one of four sexually transmitted infections; chlamydia, gonorrhoea, syphilis and trichomoniasis (WHO Media Centre, 2013).

The WHO 2008 report on the global incidence and prevalence of four selected curable sexually transmitted infections- Chlamydia trachomatis, Neisseria gonorrhoeae, syphilis and Trichomonas vaginalis – in adults between 15 and 49 years of age, estimated the total number of new cases of the four STIs to be 498.9 million: 105.7 million cases of C. trachomatis, 106.1 million cases of N. gonorrhoeae, 10.6 million cases of syphilis and 276.4 million cases of T. vaginalis. In addition, at any point in 2008 it was estimated that 100.4 million adults were infected with C. trachomatis, 36.4 million with N. gonorrhoeae, 36.4 million with syphilis and 187.0 million with T. vaginalis. Results from the WHO African Region revealed that the total number of new cases of four STIs in 2008 was estimated to be 92.6 million: 8.3 million cases of *C. trachomatis*, 21.1 million cases of *N. gonorrhoeae*, 3.4 million cases of syphilis and 59.7 million cases of *T. vaginalis*. While prevalence figures showed that 9.1 million adults were infected with *C. trachomatis*, 8.2 million with *N. gonorrhoeae*, 14.3 million with syphilis and 42.8 million with *T. vaginalis* (WHO, 2012). The implication is that Africa is home to more than a fifth of the world's burden of STIs.

The data on the incidence and prevalence of STIs in Nigeria are limited. This is as a result of underreporting of STIs which is attributable to inadequate diagnostic and treatment facilities, especially in the rural areas, asymptomatic episodes, the stigma of having an STI, limited access to health care facilities. The use of traditional healers and self-treatment with antibiotics among those with STIs further increases the extent of under-reporting (Omobude-Idiado & Bazuaye, 2009). A national survey on STI prevalence showed an STI prevalence of 10.6% among females and 3.4% among males

(FMOH, 2008). Another study involving 230 asymptomatic pregnant women attending the Antenatal Clinic of the University of Ilorin Teaching Hospital reported a prevalence of 11.8% of various STI pathogens among the women (Aboyeji & Nwabuisi, 2003). The 2013 NDHS showed that 8.1% of women and 3.5% of men reported having had an STI or experiencing STI symptoms during the 12 months preceding the survey (NPC & ICF International, 2014). This puts the reported prevalence of STIs or STI symptoms at 5.8%.

2.4. Knowledge of STIs among Young People

The knowledge base of a society about sex related aspects play an important role in the prevention and treatment of sexually transmitted diseases; it may help predict sexual behavior in relation to the use of protective measures in engaging in any sexual activity. Public health research and interventions are often based on a knowledge, attitude and practice (KAP) assumption, which postulate a correlation between knowledge and attitudes and practice or behavior. Knowledge about an infection is assumed to affect individuals' attitudes toward potential risk and thus their risk perceptions, which are in turn assumed to affect behavior associated with that risk, such as engagement in prevention strategies. STI prevention strategies often aim to increase knowledge of STIs (Knowledge), assuming knowledge will heighten STI risk perception (Attitudes), thereby leading to safer sex practices such as condom use with temporary partners (Practice) (Glanz, Lewis & Rimer, 1997; Tones & Green, 2004; WHO, 2008; Pender, Murdaugh & Parsons, 2010; UNGASS, 2010).

Also, knowledge of symptoms of STIs is one of the most important prerequisites for seeking treatment timely. Several studies have found varying levels of knowledge of STIs and STI symptoms among youths and students who are the most vulnerable population to acquire the infectionss. For instance, while a study in Nigeria reported a high level (87.4%) of knowledge of STIs among students in a tertiary institution ((Makwe & Ahmad, 2014). And a similar study in Wuhan, China, and in Abeokuta, Nigeria, reported knowledge levels as high as 99% (Albrektsson, Alm, Tan & Andersson, 2009) and 98% (Agboola, 2010) respectively. The result from another study done among adolescent students in Ethiopia was quite different as only 17.9% of adolescents had knowledge of at

least two symptoms of STIs. The low level of STI knowledge was congruent with FGD results where discussants indicated that school adolescents and the school community in general are poorly informed about STIs (Cherie & Berhane, 2012).

In line with the latter, in a recent study in Lao PDR, the mean score of knowledge of STIs among adolescents was 3.4 out of 12, suggesting poor knowledge. Few (26.3%) knew that abnormal vaginal discharge was a symptom of STIs, while 36.2% reported pain during urination as an STI symptom. In addition, there was a sex difference regarding knowledge about STIs as female participants had lower knowledge compared to male respondents (60.2% versus 39.8%) (Sychareun et al., 2013).

2.5. Young People's Perception of STIs

Perceptions of risk and their actual correlations to behaviors need to be examined to facilitate optimal prevention strategies. In epidemiology, risk expresses the probability that an event such as becoming ill or dying after exposure to certain factors (called risk factors) will occur; moreover, this risk may be perceived differently from different perspectives, depending on each individual and on his or her environment (Zinn, 2004; Zinn, 2008). Risk perception is a complex multifactorial process built on the experiences that a person undergoes during the course of his or her life which are directly or indirectly influenced by socioeconomic, political and cultural contexts.

STIs are usually results of modifiable factors such as culture, knowledge, attitudes, behaviours, availability and access to Health Services and as such they are largely preventable infections. An individual's health status is usually a reflection of his perception of these modifiable factors (Sychareun et al., 2013). Perception especially of risk and seriousness of the infections goes a long way to determine sexual behaviours and the type of action to be taken as well as the promptness of the action.

It is extremely important in terms of public health to conduct studies that seek to explore, identify, understand, describe and analyse the perception and behaviours of young people as well as the associated socio-political and cultural factors and the role they play in the risk of acquiring and transmitting STIs (Auli, Mejía-lancheros, Berenguera, Mayans, Lasagabaster & Pujol-ribera, 2013). For instance, considering condoms' documented

effectiveness in disease prevention, their wide-spread availability and public awareness of their purpose in preventing STIs, their non-use in high risk situations such as those with temporary sexual partners (Leval et al., 2011; Makwe & Ahmad, 2014) gives credence to this need.

Studies on the influence of STIs including HIV/ AIDS awareness and risk perception on condom use have reported mixed results. While some literatures suggest that individuals' knowledge of STIs including HIV/AIDS transmission have positive impact on peoples risk perception and hence the adoption of safer sexual practices (Cates, 1991), others report that there is no association between them (Kabir, Iliyasu, Abubakar & Kabir, 2004; Shiferaw, Alemu, Girma, Getahun, Kassa, Gashaw & Gelaw, 2011).

A study carried out among adolescents in Laos PDR showed that level of education, knowledge about sexual transmission of STIs, peer sexual norms, early age at first sex, multiple sexual partners, and exposure to STI symptoms were significantly related to adolescent's perception of personal risk of STIs. However, after controlling for confounding variables, factors associated with perceived personal high risk of getting STIs were; being male, high level of knowledge about STIs and having had symptoms of STIs in the last six months that preceded the study (Sychareun et al., 2013).

A recent study conducted in Nigeria among students of a tertiary institution revealed some very useful information among sexually active respondents; on the perception of risk of contracting STIs and HIV/AIDS, and rate of use of condom among the respondents, the results showed that only 2.3% reported their risk to be high compared to those reporting low risk (44.7%), and no risk at all (41.6%), others (11.4%) could not assess their risk. Among those reporting high risk, only 0.84% and 0.56% use condom regularly and occasionally respectively. The results of this study showed that there was an association between the perception of risk of contracting STIs and the use of condom during sex (Makwe & Ahmad, 2014). It is therefore pertinent to invigorate activities targeted at curtailing the menace of poor knowledge, attitudes and behaviour to sexual issues among undergraduates, who represent the cesspool and repository of the future productive human resources of the country.

2.6. Risky Sexual Behaviour among Young People

Individuals in society do different things for reasons best known to them. Some of the practices people engage in and for that matter young people are due to individual preferences, peer influence, societal pressure or cultural beliefs, norm systems or for the sake of fun. In the case of young people, where the struggle for self-identity and group acceptance is paramount, most of the practices they engage in are peer-induced.

Since the late 1980's there have been an increasing awareness of the need to pay special attention to adolescents and their Sexual and Reproductive Health (RH). This is not surprising as there are 1.7 billion young people in the world which make up over one-quarter of the world's population with 86% of them living in the developing countries (Okonta, 2007). It is also known that adolescents engage in unhealthy sexual behaviour characterized by early age at sexual initiation, unsafe sex and multiple sexual partners which are risk factors for STIs including HIV/AIDS (Temin, Okonofua, Omorodion, Renne, Coplan, Heggenhougen & Kaufman, 1999; Owolabi, Onayade, Ogunlola, Ogunniyi & Kuti, 2005; Imaledo, Peter-Kio & Asuquo 2012).

One prominent fact in determining adolescent practices is cultural endorsement. For instance, in societies where premarital sex is not punishable, young people are more likely to engage in sexual intercourse since it is at this stage they begin to explore the functions of their body parts. This exposes them to greater risk of contracting sexually transmitted diseases like HB, HIV, syphilis and gonorrhea. The United Nations has also revealed that pre-marital sex appears to be increasing among youths (United nations, 2005), and in line with this, Lear (1997) found approximately 60% of the youths in Canada, USA and Australia to have already experienced sexual intercourse, usually without condoms or knowledge of each other's STI/HIV status by the time they turn 17 years. Evidences from different studies continue to confirm the existence of increasing sexual activities among young people globally, with those in developing countries perceived to be at greater risk because of their low level of access to medical facilities and other problems associated with the Third world (Nwafor & Madu 2002; Ghuman 2005). Studies on adolescent sexual behavior in several parts of Nigeria have shown that pre-marital sexual activities are quite common especially in the urban areas.

A contributing factor to the prevalence of STIs among young people is the age at which they engage in sexual activities and this vary considerably depending on the various socializing influences and the opportunities available for practicing sexual behaviours. Studies have shown that those who have early sexual debut are at a greater risk because they have longer period of exposure to different sexual partners during their life time (Cherie & Berhane, 2012; Olasode, 2007). A study conducted among adolescents in Benin, Nigeria reported that a vast majority of the respondents agreed that most people in their community started sex at an early age. The main reason they gave for romantic relationships which may or may not involve sex was attraction while the most common reason they gave for sexual relationships was material or monetary gain although peer pressure was also frequently mentioned (Temin et.al, 1999). Low use of contraceptive by young people is another major factor contributing to the increased prevalence of STI among this group (WHO, 2000).

Adolescents are more vulnerable than adults to unplanned pregnancies, sexually transmitted infections and HIV/AIDS. It has been observed that when adolescents become sexually active, they tend to have multiple partners and use condoms and other contraceptives inconsistently (Ashford, 2001). A questionnaire survey carried out among 1041 students in secondary schools and colleges in Dar-es-Salaam showed that 30% of sexually active respondents did not always use condoms and 35% of those with multiple partners in the previous year did not always use condoms also (Maswanya, Moji, Horiguchi, Nagata, Aoyagi, Honda, Takemoto, 1999).

The National HIV/AIDS and Reproductive Health Survey of 2007 (NARHS Plus) similarly observed premarital cohabitation as one of the factors engineering the illicit sexual behaviours of the Nigerian respondents that participated in the study (FMOH, 2008). Furthermore, the University Community is constituted by mainly young people and premarital cohabitation which is a predisposing factor to the initiation of sexual activities has been reported as a common phenomenon among them (Ogunsola, 2012). To emphasize this, Ogunsola in his 2004 study revealed that cohabiting students will most likely engage in unprotected sex which could result to sexually transmitted infections and HIV/AIDS. The practices of having sex with older partners, having sex with non-steady

partners and unprotected sex are also common practices among university students (Imaledo et al., 2012; Ogadimma, 2013) and these behaviours have led to the spread of STIs in tertiary institutions in Nigeria especially as some of these infections are asymptomatic.

Many studies have confirmed that undergraduates in different parts of Nigeria have high level of awareness about STIs and HIV/AIDS (Agboola, 2010; Oladepo & fayemi, 2011; kadiri, Ahmad & Mustaffa, 2014). However, the impact of these knowledge in motivating healthy sexual behavior remains uncertain. Campus years for many individuals, is a time of curiosity and experimentation. It is often one's first taste of freedom, independence and the opportunity to make personal choices. The majority of students in tertiary institutions are single, young adults who exhibit a lot of youthful exuberance. In addition, peer pressure, cohabitation, lack of life experience, lack of knowledge, early sexual debut, multiple sexual partners, alcohol and drug use add to the risk of contracting these diseases. These, with the liberal nature of campus life are precursors to increased risk of becoming infected with STIs (Imaledo et al., 2012; Makwe & Ahmad, 2014).

Studies have shown that adolescents have the tendency of not making enough effort to prevent infectionss despite having knowledge, ways of prevention; and the risk of their possibility of contracting them (Maswanya et al, 1999). This is usually due to the fact that adolescents underestimate their risk of becoming infected. But as public health is fast becoming everybody's responsibility, there is the need to intensify the education of young people to enable them take up this challenge into their hands and strive hard to protect and improve upon their health.

2.7. Prevalence of STIs among Young People

The world currently holds the largest generation of young people in history, with 1.8 billion adolescents and youth making up one quarter of the world's population (UNAIDS, 2013). The incidence and prevalence of STIs has been reported more among this group. Globally, WHO estimates that around 498.9 million new cases of the four main curable STIs (Gonorhoea, Chlamydia, Syphilis and Trichomonasis) occured in the year 2008 among adults within the ages of 15-49 years (WHO, 2012). It is estimated that of the more than 15 million new cases of sexually transmitted infections diagnosed each year in the U.S, approximately one-fourth of these new infections occur among teenagers (CDC, 2000).

A report of Sexually Transmitted Infections in South East England revealed that almost two-thirds of STIs (62%) detected were diagnosed among young people aged between 15 and 24 years old. In young people there were higher rates of acute STIs presenting among women (3,876.8/100,000) compared to men (2,627.7 /100,000) (Health Protection Agency, 2012).

There are about 2 billion people between 10-24 years old in the world, close to 85% of these young men and women live in developing countries. In the developing countries, STIs and their complications rank in the top five disease categories for which adult seek health care (Adegun et al, 2013). More than three million new curable STIs occur annually among people aged 15–49 worldwide; 70% of these occur among 15–24-year olds (Mmari, et al., 2010). Many of these young people suffer long-term health problems as a consequence of their infection (Omobude-Idiado & Bazuaye, 2009).

Demographic and Health surveys conducted in 20 countries in Sub-Saharan Africa evidenced that up to 11% of female and 16% of male adolescents reported that they had had an STI in the preceding 12 months of the study (Bankole et al., 2004). A study done in Laos PDR found that 4.1% of respondents reported having STI symptoms during the six months preceding the interview. Among those respondents who reported having had STI symptoms, the most common STI symptoms was painful/burning sensation when urinating (30%), itching around the sex organ (30%) and genital discharge (25%). There

was no gender difference in the reported prevalence of STI symptoms (Sychareun et al., 2013). Another study in Ethiopia found that nearly one in 20 adolescents reported that they had symptoms of STIs in the past 12 months preceding the study (Cherie & Berhane, 2012).

The youths in Nigeria account for 32.0% of Nigerian's over 160 million people and nearly half (48.6%) of adolescents aged 15-19 are sexually active (Imaledo et al., 2012). In Nigeria, several research on STIs among young people have shown that STIs are indeed a common problem in this population. For instance, the highest rates of noticeable STIs have been observed in the 20-24 year age group, followed by the 15-19 and the 25-29 age groups respectively (FMOH, WHO & UNFPA, 2011).

According to a study conducted in Nigeria's rural South-East, the prevalence of STIs among adolescent females was as high as 17% (Brabin et al., 1995). Another study conducted in urban Port-Harcourt confirmed the high rate of STIs among adolescents and reported an overall adolescent STI prevalence rate of 14% (Ikimalo, Obunge, Babaatunde, Ikokwu-Wonodi, Briggs, Kemp, Dollimore, Brabin, Agbaje & Hart, 1999).

A retrospective study in a Nigerian University which analysed the patterns of Sexually Transmitted Infections (STIs) among 38,933 students who attended the University Health Centre from 2001 to 2005 showed that 1.8% the students had STIs (Omobude-Idiado & Bazuaye, 2009). Another study conducted in the Medical Centre of a University in Nigeria showed that of the two hundred (200) participants, 190 females and 10 males involved in the study, 195 (97.5%) were infected with various STI agents (Okonko et al., 2012b).

Furthermore, according to the 2013 NDHS, among respondents aged 15-29 who had ever had sexual intercourse in the last 12 months preceding the survey: 8.2% of females reported to have had STIs or STI symptoms, while the figure was 4.3% among males (NPC & ICF International, 2014).

2.8. STI Treatment Behaviour among Young People

The needs of young people for a range of sexual and reproductive information and services are clearly substantial; however, the provision of these services and their accessibility to young people is usually poor especially in developing countries of the world. Even in cases where facilities for such services have been made available, attitudes of the health workers and high cost of services have greatly affected their optimum utilization (FMOH, WHO & UNFPA, 2011). This poses a serious challenge to the control and prevention of STIs among this group of people because two of the methods of the effective Public Health STI Control Package are promotion of good health care seeking behaviour and provision of special services for at-risk populations of which young people are inclusive (Casey et al., 2010).

However, studies have reported that treatment for STIs among young people is ether sought late or never and major factors responsible were perception of unavailability, inaccessibility, unaffordable and unacceptable services provided by the existing health institutions, lack of knowledge of the disease and place of service delivery, and feeling of shame (Wood & Jewekes, 2006). Results from nationally-representative surveys of 12-19 year olds in Burkina Faso, Ghana, Malawi and Uganda in 2004 showed that contraceptive and STI services are still under-utilized. A substantial proportion of sexually-active adolescents do not know of any source to obtain contraception or get STI treatment, and social-psychological reasons such as embarrassment or fear and financial cost remain common barriers to getting services (Biddlecom, Munthali, Singh, & Woog, 2007).

A cross sectional study done among adolescent high school students in Ethiopia revealed that 4.9% of the students reported having symptoms of STIs twelve months prior to the survey, of which 33.1% of this proportion did not receive treatment. Among those who reported treatment, 42.7% took self medication. Major barriers for not seeking treatment for STIs were perception of unavailability, unaffordability and inaccessibility of STI services in the existing health institutions (Cherie & Berhane, 2012). The study findings had policy and programmatic implications such as the need for efforts be intensified to provide adolescent friendly services; the need for Government and Private schools to establish adolescent friendly school health services so that they can be provided with

accessible, acceptable, affordable, confidential and flexible services in a youth friendly manner. The study also emphasized the need for the school curriculum to include basic facts about STIs and sexuality education to boost up the knowledge of students about STIs thereby reducing the transmission while at the same time increasing the prevention of STIs. The need for students to be involved in the planning and decision making of their Sexual and Reproductive Health services and programmes was also suggested. In addition, further longitudinal studies to explore the STI treatment seeking patterns of adolescents were recommended.

Contrary to most findings, in a survey in a South African community involving 332 STI patients aged 16 years and above; a total of 330 participants (99.4%) took action when they thought that they had an STI infection. The majority 325, (97.9%) did not engage in self-treatment. Just over 99% of the participants (329) sought help when they thought that they had the symptoms of an STI. The majority 195 (58.7%) presented within one week, while 137 (41.3%) did so after one week. A large proportion of participants 255 (76.8%) preferred public healthcare facilities, 50 (15.1%) visited traditional healers and 22 (6.6%) went to the pharmacy for help. The majority of participants 221 (66.6%) finished their course of treatment, 88 (26.5%) said that completing the course was not an important consideration, while 23 (6.9%) failed to finish the course. More than half (57.5%) of participants continued to engage in sexual activity when they had an active STI; 2.4% with multiple partners and 11.4% without condom protection. Financial considerations had a minor influence on participants' actions (6.9%). Their belief system (98%), stigma (shame) (76.8%) and accessibility to a healthcare facility (56.9%) were the major factors that influenced participants' actions (Govender & Eche, 2012).

According to a study comprising 538 males and females aged 15–24 with at least one STI symptom drawn from the 2003 and 2005 National HIV/AIDS and Reproductive Health Surveys; a greater proportion of males (64%) than of females (48%) had sought treatment for their STIs. Among those who had sought treatment, 60% of females had gone to formal sources, most commonly a government clinic; 54% of males had sought care from informal sources, most commonly a traditional healer. Females had lower odds than males of having sought STI treatment (odds ratio 0.6). Among both males and females,

economic status was positively associated with seeking treatment from a formal source rather than an informal source; among females, 22–24 year olds were more likely than those aged 15–18 to have sought treatment from a formal source (Mmari, Oseni, & Fatusi, 2010).

In a more recent study (NDHS, 2013) in Nigeria, women and men who reported having an STI and/or STI symptoms in the past 12 months were asked whether they sought any advice or treatment; 40% of women sought advice or treatment from a clinic, hospital, private doctor, or other health professional; 22% of them sought advice or medicine from a shop or pharmacy; and 27% sought no advice or treatment. Men were more likely than women to seek advice or treatment for STIs or STI symptoms, with 45% seeking advice or treatment from a health facility or health professional and 27% from a shop or pharmacy; while 20% of men did not seek advice or treatment (NPC & ICF International, 2014).

2.9. Conceptual Framework of the Study

Health Promotion and Education is an applied social science for health development. It emphasizes voluntary adoption of health promoting behaviours and attitudes which must be planned on a thorough diagnosis of the social, psychological, economic, political, cultural and environmental factors that influence human behaviour in relation to their health (Tones & Green, 2004). The use of various models in determining the relationship between variables has provided the opportunity to have in-depth understanding of all the cause-and-effect of factors that influence individual's, families' and communities' health. The Health Believe model is used in this study to explain human behaviors as it relates to Risk perceptions of STIs and treatment among students of the Polytechnic, Ibadan, Oyo state.

The Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviours in relation to health problems and their management. The model focuses mainly on the **attitudes and beliefs** of individuals towards a disease, product or intervention method. The HBM was first developed in the 1950s by social

psychologists Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis (TB) health screening program. The TB screening program provided adults with free TB screening x-rays from mobile units conveniently located in various neighborhoods. When few adults came out for the free services, program organizers began investigating why more adults did not come out. Hochbaum, however, began to study what motivated the few who did come out. He quickly learned that their perceived risk of the disease and perceived benefits of action were crucial factors in their motivation (Sharma & Romas, 2012).

The model was first presented with only four key concepts: Perceived Susceptibility, Perceived Severity, Perceived Benefits, and Perceived Barriers. The concept of Cues for Action was added later to "stimulate behavior." Finally, in 1988, the concept of Self-Efficacy was added to address the challenges of habitual unhealthy behaviors such as smoking and overeating (Glanz, 1997). Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS as well as a variety of health education topics including sexuality education.

Since the HBM is based on motivating people to take action, (like using condoms) it can be a good fit for sexuality education programs that focus on:

1. Primary prevention — for example, programs that aim to prevent pregnancy, sexually transmitted infections (STIs) and HIV by increasing condom use, and
2. Secondary prevention — for example, programs that aim to increase early detection of STIs or HIV to reduce their spread via unprotected intercourse and to ensure the early treatment of the conditions.

The theoretical framework is illustrated in figure 2.1

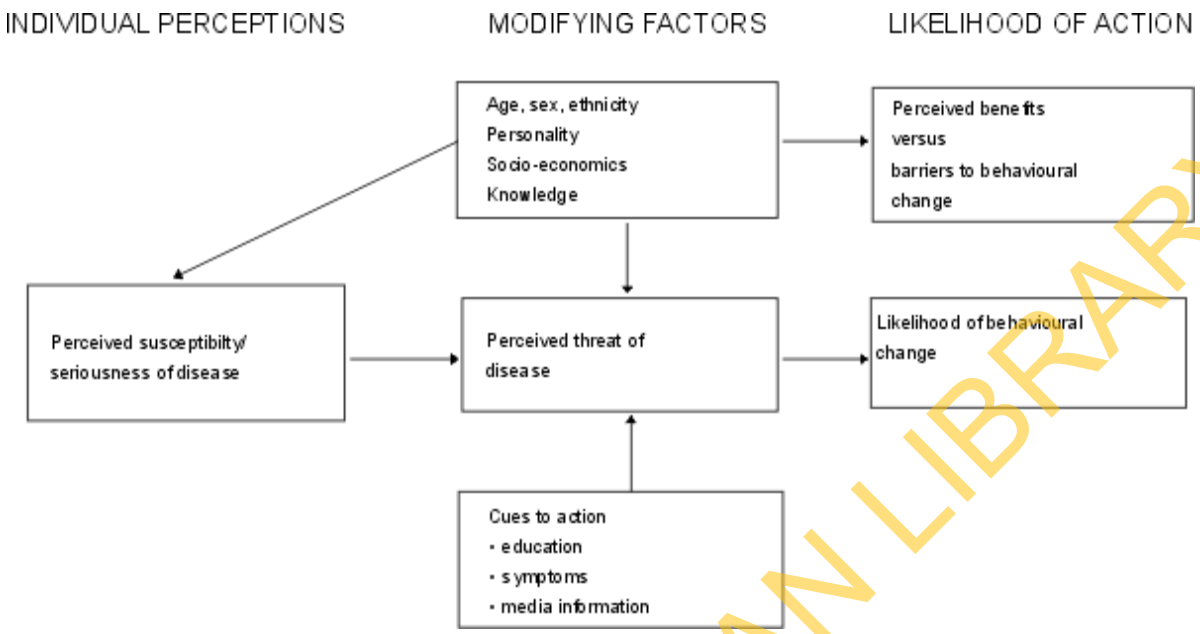

Figure 2.1: Conceptual frame work of the Health Belief Model

Source: Glanz et al., 2002

Application of the Conceptual Framework to the Study

In the course of this study;

- Perceived susceptibility was operationalised through questions 15 and 16 of the questionnaire which asked respondents on their risk of contracting STIs. From the responses recorded, their perceived susceptibility was very low.
- Perceived seriousness was assessed by questions 13, 14 and 17 which bothered on complications associated with STIs treatment possibilities and respondents' perception of the seriousness of STIs respectively. Their responses showed that many of them perceived STIs to be serious infections with serious health consequences.
- Perceived barriers to seeking prompt and appropriate treatment if infected were assessed by questions 37 of the questionnaire which asked respondents why they will delay treatment or never do anything if they become infected. Major barriers identified included "wanting to be sure before going for treatment", "lack of money" and "not knowing what the symptom(s) is/are".
- Cues to action was assessed by questions 12, 33 and 34: the results from these assessments showed that the respondents had very low knowledge of STI symptoms and this may affect their perceived susceptibility as well as their readiness to take appropriate preventive and treatment actions. Also, the fact that majority of the respondents were not aware of any STI programme in the school also reduces their cue to action. However, the reported prevalence of STIs among them is an encouraging factor for taking appropriate prevention measures.
- Factors that could influence the self efficacy of respondents were operationalised by questions 35 and 38; the responses showed that majority would prefer to visit the health facility for treatment; this may influence their self efficacy as they would be given age-appropriate information there on how best to prevent subsequent infections. The fact that majority also reported to be willing to talk to either a health worker or parent will also boost their self efficacy in initiating appropriate prevention and treatment actions.

The above is illustrated in the HBM conceptual framework in figure 2.2.

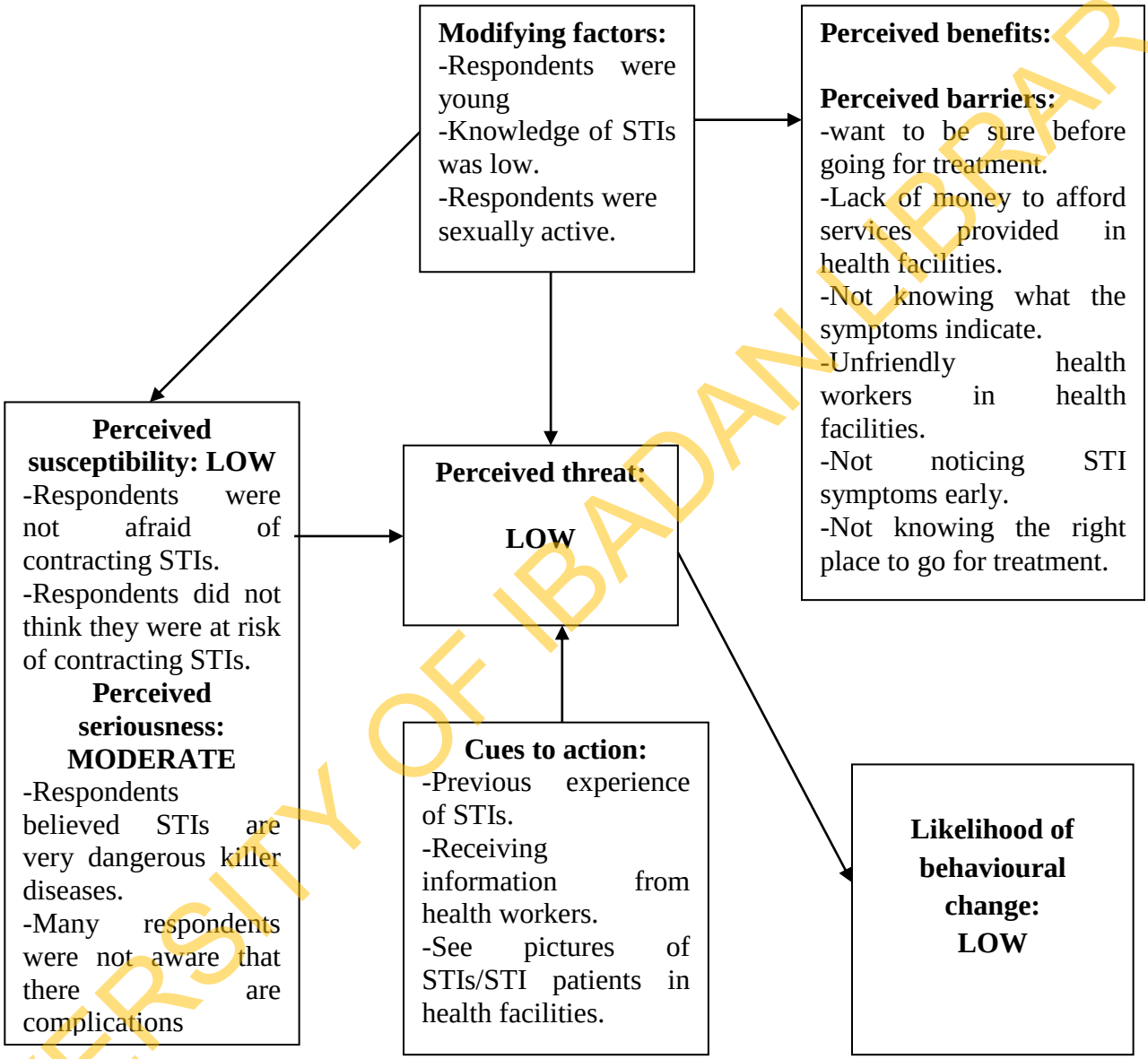

Figure 2.2: Application of the HBM conceptual framework to the study

The HBM has been used to explore a variety of health behaviours and is effective in determining factors that influence the risk perception of a particular health problem. Any intervention that will be developed from the results of this study will be designed to influence the risk perception, perceived severity, perceived benefits, perceived barriers, cues to action and self efficacy in such a way that the perceived threat of the infections as well as likelihood of behavioural change will be increased. The desired behavioural change here could be either to take up prompt and accurate treatment action when infected such as going for screening when symptoms appear and/or to adopt good preventive practices such as condom use.

Application of the HBM to STI prevention through promotion of STI Screening

- **Perceived Susceptibility:** Respondents believe they may have been exposed to STIs or HIV.
- **Perceived Severity:** Respondents believe the consequences of having STIs or HIV without knowledge or treatment are significant enough to try to avoid.
- **Perceived Benefits:** Respondents believe that the recommended action of getting tested for STIs and HIV would benefit them, possibly by allowing them to get early treatment or preventing them from infecting others.
- **Perceived Barriers:** Respondents identify their personal barriers to getting tested (i.e., getting to the clinic or being seen at the clinic by someone they know) and explore ways to eliminate or reduce these barriers (i.e., brainstorm transportation and disguise options)
- **Cues to action:** Respondents receive reminder cues for action in the form of incentives (such as a key chain that says, "Got sex? Get tested!") or reminder messages (such as posters that say, "25% of sexually active teens contract an STI. Are you one of them? Find out now").
- **Self-Efficacy:** Respondents receive guidance (such as information on where to get tested) or training (such as practice in making an appointment).

The above is illustrated in the HBM theoretical framework in figure 2.3.

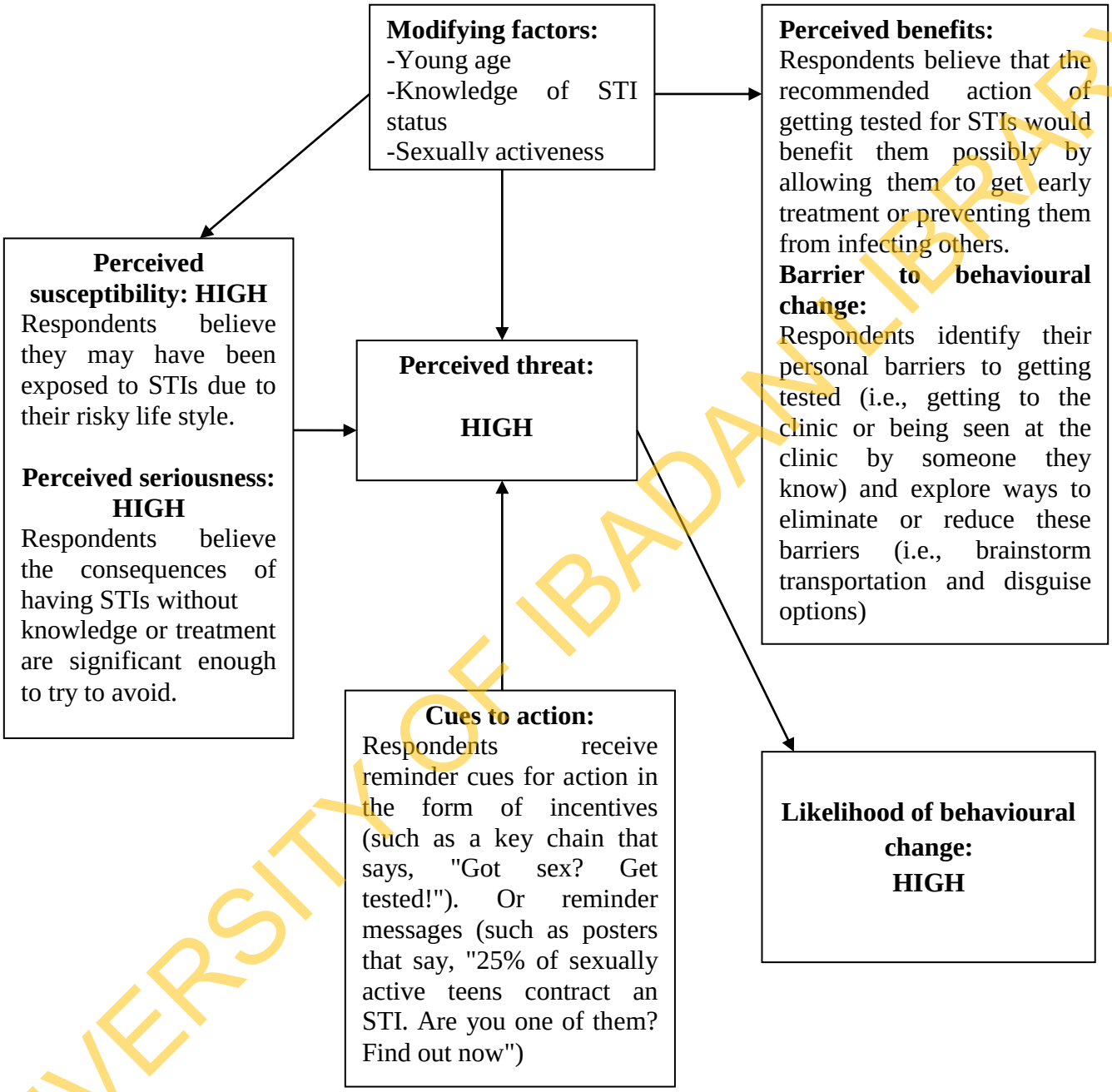

Figure 2.3: Application of the HBM to STI prevention through the promotion of STI Screening

Application of the HBM to STI prevention through promotion of Condom use

- **Perceived Susceptibility:** Respondents believe they can get STIs or create a pregnancy.
- **Perceived Seriousness:** Respondents believe that the consequences of getting STIs or HIV or creating a pregnancy are significant enough to try to avoid
- **Perceived Benefits:** Respondents believe that the recommended action of using condoms would protect them from getting STIs or HIV or creating a pregnancy.
- **Perceived Barriers:** Respondents identify their personal barriers to using condoms (i.e., condoms limit the feeling or they are too embarrassed to talk to their partner about it) and explore ways to eliminate or reduce these barriers (i.e., teach them to put lubricant inside the condom to increase sensation for the male and have them practice condom communication skills to decrease their embarrassment level)
- **Cues to action:** Respondents receive reminder cues for action in the form of incentives (such as pencils with the printed message "no glove, no love") or reminder messages (such as messages in the school newsletter on the importance of safe sex).
- **Self efficacy:** respondents become confident in negotiating and using a condom correctly in all circumstances.

The above is illustrated in the HBM theoretical framework in figure 2.4.

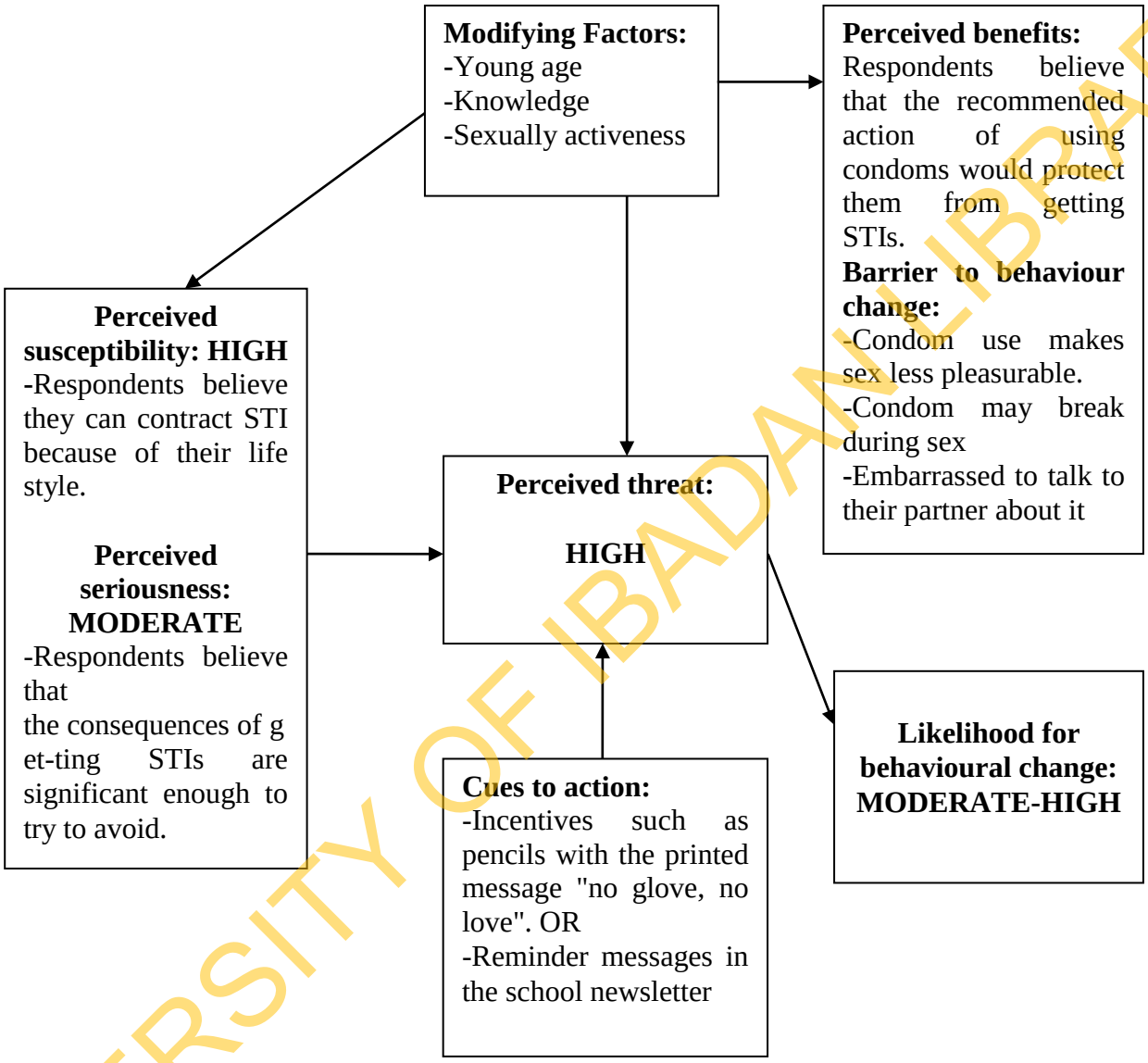

Figure 2.4: Application of the HBM to STI prevention through promotion of Condom use

CHAPTER THREE

METHODOLOGY

3.1. Research Design

The study was a quantitative cross-sectional descriptive survey designed to investigate the knowledge of common symptoms, risk perception and treatment behaviours of STIs among students of The Polytechnic, Ibadan, Oyo State.

3.2. Description of the Study Area

This study was carried out at The Polytechnic, Ibadan, Oyo state. The institution was established in 1970 as a successor to the erstwhile Technical College, Ibadan under the provision of a Principal Edict cited as "The Polytechnic, Ibadan Edict 1970". The Edict has undergone several amendments in order to make the institution relevant to the present day needs of prospective students. The institution is located at Sango area in Ibadan North Local Government Area of the state.

The primary function of The Polytechnic is to provide students with training and development of skills in applied science, engineering, environmental science and commerce. Since the inaugural 1975/76 academic session, The Polytechnic, Ibadan has been operating the Faculty system for easier co-ordination and management. At present, there are five faculties with a population of over 19000 students. The five faculties are: Engineering, Science, Environmental Studies, Financial and Management Studies and Business and Communication Studies. The Faculties run National and Higher National Diplomas both part time and full time. The Polytechnic main campus has at present four Halls of Residence with a total capacity of nearly 4000. The Halls are: Orisun Hall (South Campus), Ramat Hall (North Campus), Unity Hall (North Campus), Olori Hall (Female Hostel). Only bonafide registered full time students of the polytechnic are allowed to live in the Halls of residence.

The Polytechnic has rules and regulations that guide students' sexual and social activities on campus. Visitors of the opposite sex can be received in the common room only and not in the student bedroom (Students' Information Handbook, The Polytechnic Ibadan, 2010).

3.3. Study Population

The population for this study were students of The Polytechnic, Ibadan main campus, admitted for the academic programmes of the institution.

3.4. Inclusion Criteria

Students of the Polytechnic, Ibadan currently running full time National Diploma and Higher National Diploma were involved in the study.

3.5. Exclusion Criteria

This study excluded students on preliminary programmes as well as part-time or sandwich students. This is because students running these programmes are not regular students and their academic calendar is different from the regular students as such it may be difficult to recruit them for the study.

3.6. Determination of Sample Size

The sample size (n) was determined by using the Leslie Kish sample size determination formula:

$$n = \frac{Z^2\, p(1-p)}{d^2}$$ (Bamidele, 2009)

Where n=minimum sample size required

Z= confidence limit of survey at 95% (1.96)

P= Proportion of knowledge of STI Symptoms taken as 17.9% =0.179 (Cherie & berhane, 2012)

d=absolute deviation from true value (degree of accuracy) = 5% =0.05

$$n = \frac{1.96^2 \times 0.179 \times 0.821}{0.05^2} = 225.82 = 226$$

Therefore, the minimum sample size estimate for the study was 226.

However, to increase the precision of the study and to compensate for cases of loss of questionnaires as well as rejection due to poor filling, the sample size was increased to four hundred and eighty (480). **Therefore the sample size used for the study was 480.**

3.7. Sampling Procedure

A multistage sampling technique involving four stages was used to select 480 students from the student population. The sampling technique involved the Faculties and the Departments. All five faculties in the school were used for the study. There are thirty (30) departments across the five faculties in the school; to ensure that departments were adequately represented, one third of the total Departments in the school were used for the study. This brought the number of Departments used to ten (10).

Table 3.1: List of Departments in the five Faculties of The Polytechnic, Ibadan

SN/ Faculty	Business and Communica-tion Studies	Engineering	Environmental Science	Financial & Mana gement Studies	Science	
1	Business Administration	Civil	Architecture	Accountancy	Chemistry	
2	General Studies	Computer	Art, Design and Painting	Banking and Finance	Computer Studies	
3	Local Government Studies	Electrical Elec tronics	Building Technology	Insurance	Microbiology	
4	Marketing	Mechanical Engineering	Estate Management		Geology	
5	Mass Communication	Mechantronics	Surveying and Geoinfomatics		Mathematics and Statistics	
6	Music Technology		Urban and Regio nal Planning		Physics	
7	Office Technology Management				Science Laboratory Technology	
8	Purchasing and Supply					
9	Public Administration					
Total	**9**	**5**	**6**	**3**	**7**	**=30**

Source: Department of Academic Planning, The Polytechnic, Ibadan

Stage one: Proportionate sampling technique was used to determine the number of departments to be selected from each faculty. This was necessary because the number of departments in each faculty varied; it was therefore necessary to ensure that faculties are proportionately represented.

The proportion for each faculty was calculated thus:

$$\text{Proportion} = \frac{\text{Total number of departments in the faculty X Total number of Departments required}}{\text{Total number of all departments}}$$

Note:

Total number of all departments = 30

Total number of departments required = 10

Table 3.2: Proportionate sampling procedure used to determine number of departments selected from the faculties

S/N	Faculty	Proportion calculated	Number of Department required
1	Business and Communication Studies	$\frac{9}{30}$ X 10 = 3	3
2	Engineering	$\frac{5}{30}$ X 10 = 1.6	2
3	Environmental Science	$\frac{6}{30}$ X 10 = 2	2
4	Financial and Management Studies	$\frac{3}{30}$ X 10 = 1	1
5	Science	$\frac{7}{30}$ X 10 = 2.3	2
Total			**10**

Stage two: This involved selection of the Departments from each Faculty. It involved simple random sampling through the use of simple ballot technique. The list containing the number of Departments in each faculty was used to develop sample frames for each Faculty and the required number of Departments was selected from each using the simple random balloting technique. The same procedure was used for all the Faculties.

The Departments selected from each Faculty is presented in the table below;

Table 3.3: Randomly selected Departments

Faculty	S/N	Department
Business and Communication Studies	1	Marketing
	2	Music Technology
	3	Office Technology and Management
Engineering	4	Civil
	5	Electrical
Environmental Studies	6	Architecture
	7	Survey and Geoinfomatics
Financial and Management Studies	8	Accountancy
Science	9	Geology
	10	Microbiology

Stage three: The number of respondents to be selected from each Department was determined by using the proportionate sampling technique. The number of students in each of the selected Departments was obtained from the Departmental staff and was used to calculate the proportion to be allocated to each department.

Table 3.4: Number of students in each selected department

S/N	Department	Number of students
1	Accountancy	743
2	Architecture	187
3	Civil Engineering	404
4	Electrical Engineering	617
5	Geology	501
6	Marketing	163
7	Microbiology	150
8	Music Technology	281
9	Office Technology and Management	480
10	Survey and Geoinfomatics	317
Total		**3,843**

The proportion for each Department was calculated using the formula below;

$$\text{Proportion} = \frac{\text{Total number of students in the Department}}{\text{Total number of students in the all the selected Departments}} \times \text{Sample size}$$

Table 3.5: Procedure used to determine number of students recruited from each department

S/N	Department	Proportion calculated	Number of students required
1	Accountancy	$\frac{743}{3843}$ X 480 = 92.8	93
2	Architecture	$\frac{187}{3843}$ X 480 = 23.4	23
3	Civil Engineering	$\frac{404}{3843}$ X 480 = 50.4	50
4	Electrical Engineering	$\frac{617}{3843}$ X 480 = 77.1	77
5	Geology	$\frac{501}{3843}$ X 480 = 62.6	63
6	Marketing	$\frac{163}{3843}$ X 480 = 20.3	20
7	Microbiology	$\frac{150}{3843}$ X 480 = 18.7	19
8	Music Technology	$\frac{281}{3843}$ X 480 = 35.1	35
9	Office Technology and Management	$\frac{480}{3843}$ X 480 = 60	60
10	Survey and Geoinfomatics	$\frac{317}{3843}$ X 480= 39.6	40
Total			**480**

Stage four: This was the final sampling stage which involved selection of the required number of students from each department. Systematic sampling method was used to select individual subjects.

3.8. Instrument for Data Collection

The instrument used was a self-administered semi-structured questionnaire which was designed by the researcher using information gotten from literatures on Knowledge of STIs, Risk perception of STIs, and Treatment behaviours of STIs. The questionnaire was made up of thirty eight (38) questions most of which were precoded, there were only seven open ended questions. The questions were grouped into 6 sections (A-E) as shown below:

Section A: Socio- demographic characteristics of the respondents.

Section B: Knowledge about STIs.

Section C: Perception of STIs

Section D: Sexual Practices and Behaviours

Section E: Prevalence of STI Symptoms

Section F: Treatment Behaviours towards STIs

Apart from section A of the questionnaire which was designed to collect the socio-demographic information of the respondents, each of the other five sections of the questionnaire addressed one specific objective each of the study. The items on the knowledge section were scored and a 14-item 20 point knowledge scale was generated. Scores less than or equal (≤) 9 were categorised as poor while scores greater than or equal (≥) 10 were categorised as good.

3.9. Validity of the Research Instrument

A draft of the questionnaire was developed by the researcher. The questions in the questionnaire were drawn in English since the target population were tertiary school students who are literate in English language. The questions were developed from information gathered from relevant literatures guided by the research objectives. The instrument was further validated by giving it out to peers and lecturers in the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, for review and corrections. The final validation was done by the project supervisor, Professor J. D. Adeniyi.

3.10. Reliability of the Research Instrument

Pretesting of the questionnaire was carried out in order to identify and correct errors in the questionnaire and also to ascertain the relevance, importance and adequacy of the questionnaire in collecting the required information from respondents. Ten percent (10%) of the sample size (10% of 480) which was forty eight (48) respondents was used. The Pretest was done by the researcher and one of the research assistants at the Oke Ogun Polytechnic formerly Ibadan polytechnic Saki campus, Saki, Oyo State. Eligible students were given an explanation about the purpose and objectives of the study before being asked for consent and to fill in the questionnaire. It took about thirteen minutes for a student to complete a questionnaire. After collection of the questionnaires, the data were coded and entered into SPSS version 20 and the Cronbach's Alpha test was applied to it to determine the reliability co-efficient. The value obtained was 0.7 which was close and hence the instrument was found to be reliable.

3.11. Data Collection Procedure

Students of The Polytechnic, Ibadan were the respondents. To administer the questionnaires, two research assistants, a male and a female were employed to administer and retrieve the questionnaires. They were adequately trained and mobilized for the exercise. The research assistants were given adequate information about the objectives of the research, data collection process, sampling procedures, and the content of the questionnaire to avoid probable mistakes that could affect the results of the study. Eligible students were given an explanation about the purpose and objectives of the study before being asked for consent and to fill in the questionnaire. The researcher provided adequate supervision to the research assistants and also participated in data collection. The research assistants submitted the filled questionnaires to the researcher on a daily basis. The administration of the questionnaires took a period of two weeks.

3.12. Method of Data Management

The researcher checked the questionnaires collected by the research assistants to ensure that they were well-filled. A coding guide was developed to facilitate data entry. Each questionnaire was given a serial number, coded and entered into a computer facilitated by the developed coding guide. Data analyses were done using SPSS software (version 20). Simple descriptive statistics (Frequency, percentages and mean) as well as Chi square ($\chi 2$) tests (at p=0.05 level of significance) were used for the analyses. Cross tabulation of some of the independent variables against dependent variables of the research, such as "gender against knowledge and prevalence of STI symptoms", "sexual behaviour against risk perception", were done to test the hypotheses of the research.

3.13. Ethical Consideration

Permission was gotten from the Registrar and concerned Departmental Heads at The Polytechnic, Ibadan prior to data collection from the students. Also, the students were given full details concerning the research before being asked to take part in it so as to ensure that they fully understood the research. There was no coercion to participate and the decision to participate was solely that of the students. In addition, written informed consent was obtained from the students prior to filling of the questionnaires. The privacy, confidentiality and anonymity of the research participants were ensured as the questionnaire used for data collection was rid of all identifiers. The study was non invasive and relatively risk-free to the participants.

3.14. Limitations of the Study

The study is limited in that it was carried out in a school environment involving 401 students, thereby making the research participants very selective. Any generalization of the results of this study must be made with caution.

Also, Sexually Transmitted Infections (STIs) is a sensitive topic that many young people are reluctant to talk about. As such, there could be some bias in the filling of the questionnaires because of social desirability.

The data on STI symptom prevalence is based on self-reports of STI symptoms, which is particularly problematic for young women, given that many of the symptoms are fairly common and some, such as genital discharge, may be unrelated to STIs.

The research also did not look into the actual treatment practices adopted by students who had experienced STI symptoms in the past 12 months. The researcher discovered during the pretest that students were reluctant to fill the section related to treatment practices, therefore to avoid non response bias; the section was modified to assess their preference if they were to become infected. Since preference usually do not always translate into practice, the responses provided may not actually reflect their STI treatment behaviour. Further research that examines actual differences in service use, barriers and preferences among the target population is necessary.

CHAPTER FOUR

RESULTS

This chapter reports the findings of the study. A total of four hundred and eighty (480) questionnaires were administered and four hundred and seventeen (417) questionnaires were retrieved. Out of this number, sixteen (16) questionnaires were rejected due to poor filling. The data analysis was therefore carried out with four hundred and one (83.5%) questionnaires.

The result is presented in six sections: Section A reports the demographic characteristics of respondents, Section B reports respondents' knowledge level of STIs while Section C reports respondents' perceptions of STIs. Respondents' history of sexual behaviour is presented in Section D, the prevalence of common STI symptoms among respondents is reported in Section E, while Section F presents the preferred treatment options of respondents.

4.1. Section A: Respondents' Socio-Demographic Characteristics

The socio demographic characteristics of the students as shown in Table 4.1 indicate that there were more males (61.8%) than females (38.2%). The ages of the respondents ranged from 15 to 45 years with a mean age of 22 ±3.4; many (52.1%) of the respondents were in the age bracket of 20-24 years, while very few (2.5%) were between the 30 years and above age range.

With respect to residence; many (58.4%) of the respondents lived outside the school premises, while some (41.6%) lived in the Campus hostels within the school. Among single respondents living off campus, 27.1% have cohabited. The percentage of cohabitation for the entire respondents was 15%.

All most all (95%) the respondents were single with only a very few (5%) being married. More than two third (70.3%) of the respondents were Christians, while 28.9% were Muslims. All most all (92.5%) the respondents were Yoruba, 2% were Ibos, 0.7% were Hausas while 4.7% belonged to other ethnic groups.

Table 4.1a: Respondents' Socio-Demographic Characteristics 1 (N=401)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	248	61.8
Female	153	38.2
Age (in years)		
15-19	101	25.2
20-24	209	52.1
25-29	81	20.2
30+	10	2.5
Residence		
Campus hostel	167	41.6
Off campus	234	58.4
Cohabitation status of single respondents living off-campus (N=215)		
Yes	60	27.9
No	155	72.1
Marital status		
Single	381	95
Married	20	5

Table 4.1b: Respondent's Socio-demographic characteristics 2 (N=401)

Faculty	Department	Frequency (n)	Percentage (%)
Engineering	Civil Engineering	42	10.5
	Electrical Engineering	65	16.2
Science	Geology	52	13
	Microbiology	16	4
Environmental Studies	Architecture	20	5
	Survey and Geoinfomatics	33	8.2
Financial and Management Studies	Accountancy	77	19.2
Business and Communication Studies	Marketing	17	4.2
	Music Technology	29	7.2
	Office Technology and Management	50	12.5
Level of study			
ND.1		110	27.4
ND.2		105	26.2
HND.1		97	24.2
HND.2		89	22.2

Among the 401 eligible questionnaires retrieved from the ten (10) departments sampled, the Department of Accounting had the highest number of respondents (19.2%), followed by Electrical Engineering (16.2%), then Geology (13%), Microbiology had the lowest (4%). In terms of the level of study, 27.4% of respondents were in ND.1, 26.2% were in ND.2, 24.2% were in HND.1 while HND.2 had 22.2% of the respondents.

4.2. Section B: Respondents' Knowledge of STIs

Table 4.2: List of diseases mentioned as STIs (N=401)

SN	Diseases mentioned**	Frequency	%
1	HIV/AIDS*	304	75.8
2	Gonorrhoea*	255	63.6
3	Syphilis*	130	32.4
4	Ebola*	81	20.2
5	Genital herpes*	24	6.0
6	Hepatitis B*	19	4.7
7	Chlamydia*	8	2.0
8	Chancroid*	7	1.7
9	Pubic lice*	4	1.0
10	Trichomoniasis (Toilet infection)*	3	0.7
11	Human Papiloma Virus (HPV) infection*	2	0.5
12	Staphylococcus	44	11
13	Diarrhoea	37	9.2
14	Eczema	21	5.2
15	Candidiasis (Yeast infection)	17	4.2
16	Waist pain	17	4.2
17	Cancer	14	3.5
18	Boils	11	2.7
19	Urinary tract infection	9	2.2
20	Typhoid fever	8	2.0
21	Stomach pain	7	1.7
22	Anaemia	6	1.5
23	Tuberculosis	6	1.5
24	Body pain	5	1.2
25	Diabetes	5	1.2
26	Internal disease	4	1.0
27	Hypertension	4	1.0
28	Epilepsy	3	0.7
29	Bacterial vaginosis	3	0.7
30	Cholera	3	0.7
31	Yellow fever	3	0.7
32	Malaria	3	0.7
33	Weak erection	2	0.5
34	High vaginal swab	2	0.5
35	Hepatitis C	1	0.2

** Multiple responses were included
*Correct answers

Respondents were asked to mention any four (4) STIs they knew. The list of STIs mentioned by respondents is presented in table 4.2. HIV was the most mentioned by 75.8% of respondents, next was Gonorrhoea (63.6%), then Syphilis (32.4%), and Ebola by 20.2%. The least mentioned STIs were Human Papiloma Virus (HPV) (0.5%) and Trichomoniasis (0.7%). Staphylococcus and Diarrhoea were the most wrongly mentioned infections; they were mentioned by 11% and 9.2% of respondents respectively.

Table 4.3: Symptoms mentioned as STI symptoms (N=401)

SN	SYMPTOMS**	Frequency	%
1	Itching of the genitals*	62	15.5
2	Fever/high body temperature*	50	12.5
3	Discharge from the genitals*	40	10
4	Pain during urination*	31	7.7
5	Bleeding from the vagina*	22	5.5
6	Inflammation/redness or sore on the genitals and mouth*	8	2
7	Lower abdominal pain*	2	0.5
8	Weight loss	68	17
9	Vomiting	55	13.7
10	Diarrhoea	27	6.7
11	Waist pain	22	5.5
12	Body pain	20	5
13	Weakness	20	5
14	Blockage of menstrual flow/irregular menstrual cycle	14	3.5
15	Continuous sickness	8	2
16	Loss of appetite	8	2
17	Headache	8	2
18	Coughing	7	1.7
19	Skin infection	7	1.7
20	Malaria fever	6	1.5
21	Sore throat	5	1.2
22	Swollen/red eyes	5	1.2
23	Jaundice	4	1
24	Sugary urine	4	1
25	Convulsion	3	0.7
26	Anaemia	3	0.7
27	Frequent urination	3	0.7
28	Nausea	2	0.5
29	Typhoid fever	2	0.5
30	Measles	2	0.5
31	Weak erection	2	0.5
32	Swelling of the body	1	0.2
33	Death	1	0.2
34	Hypertension	1	0.2

** Multiple responses were included
*Correct answers

Respondents were also asked to list any two (2) common symptoms of STIs that they are familiar with. The list of symptoms mentioned is presented in Table 4.3 above. Of the symptoms correctly mentioned, the most frequently mentioned was itching of the genitals, which was mentioned by 15.5% of respondents, followed by fever/high body temperature (12.5%). Only two (2) persons (0.5%) mentioned lower abdominal pain as a common STI symptom. Of the wrongly mentioned symptoms, weight loss was the most frequently mentioned; it was mentioned by 17% of respondents.

Table 4.4: Knowledge of common STI symptoms (N=401)

	Frequency	%
No knowledge of any STI symptom	232	57.9
Knowledge of only one STI symptom	123	30.6
Knowledge of at least two STI symptoms	46	11.5
Total	**401**	**100.0**

A close look at respondents' knowledge level of common STI symptoms in Table 4.4 above showed that most of them (57.9%) did not have knowledge of common STI symptoms; 30.6% knew only one STI symptom; while very few (11.5%) knew at least two STI symptoms. In all, 42.2% had knowledge of at least one common STI symptom.

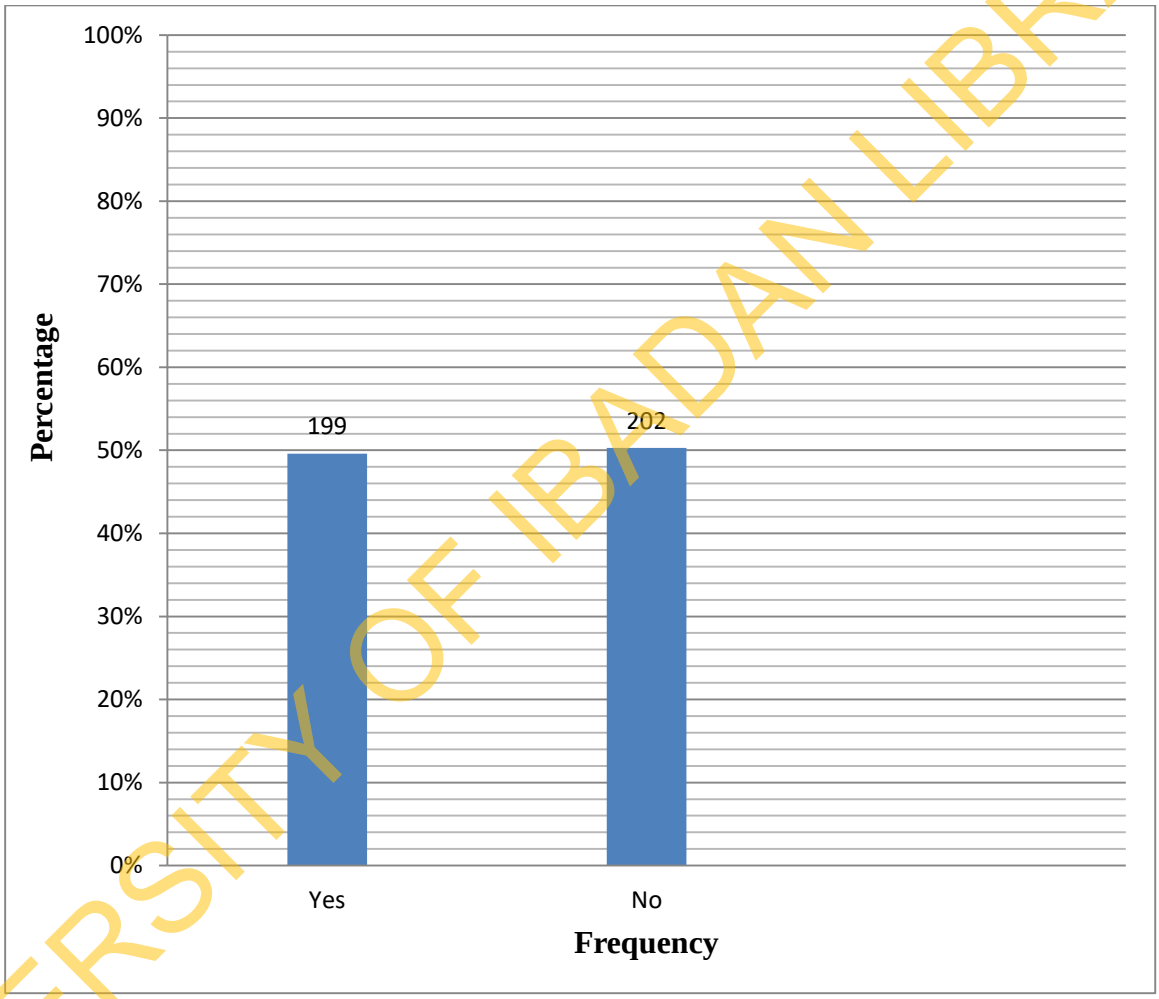

Figure 4.1: Awareness on complications associated with STIs

Table 4.5: Complications associated with STIs (N=199)

	Variable	Yes, (%)	No, (%)
i	Pelvic inflammatory disease*	110 (55.3%)	89 (44.7%)
ii	Cancer of the reproductive organs and liver*	96 (48.2%)	103 (51.8%)
iii	Urethral stricture*	93 (46.7%)	106 (53.3%)
iv	Tubal blockage*	89 (44.7%)	110 (55.3%)
v	Eye infection/blindness in newborn babies of infected mothers*	70 (35.2%)	129 (64.8%)
vi	Weight loss	146 (73.3%)	53 (26.7%)
vii	Irregular menstrual cycle	119 (59.8%)	80 (40.2%)
viii	Diarrhoea	93 (46.7%)	106 (53.3%)
ix	Vomiting	92 (46.2%)	107 (53.8%)

*Correct options

On the awareness of complications associated with STIs presented in Figure 4 and Table 4.5 above, almost half (49.6%) of the respondents indicated that they were aware of it; while over half (50.4%) were not aware. When respondents who agreed (199) that there are complications associated with STIs were asked to tick the complications of STIs from the options given, a high proportion of them correctly ticked pelvic inflammatory disease (55.3%) and cancer of the reproductive organs and liver (48.2%) as complications of STIs. However, many of them wrongly ticked weight loss (73.4%) and irregular menstrual cycle (59.8%).

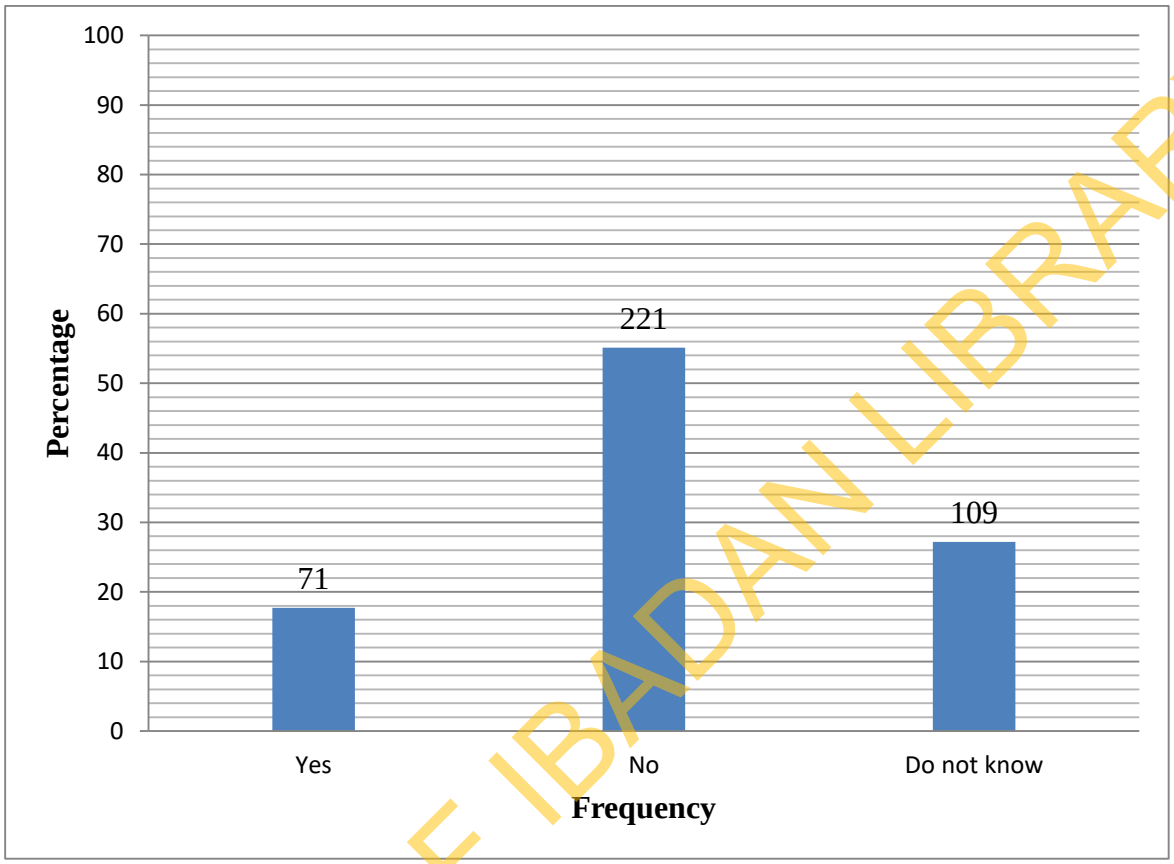

Figure 4.2: Proportion of respondents who knew that there are some STIs that are incurable

Table 4.6: STIs listed as incurable (N=221)

S/N	STI**	Frequency	%
1	HIV/AIDS*	151	68.3
2	Ebola*	42	19.0
3	Genital herpes*	16	7.2
4	Hepatitis B*	10	4.5
5	Human papiloma virus (HPV) infection*	10	4.5
6	Gonorrhoea	27	12.2
7	Chlamydia	14	6.3
8	Cancer	12	5.4
9	Syphilis	8	3.6
10	Candidiasis (Yeast infection)	5	2.3
11	Staphylococcus	3	1.4
12	Chancroid	2	0.9
13	Cholera	1	0.5
14	Hypertension	1	0.5

** Multiple responses were included
*Correct answers

The results from the responses to whether there are STIs that are incurable are presented in Figure 5. and Table 4.6 above. Many (55.1%) of them believed that there are STIs that are not curable; few (17.7%) believe that all STIs were curable; while 27.2% do not know. Among the respondents that believed that some STIs are not curable, 151 (68.3%) respondents listed HIV as incurable, Ebola was next by 42 (19%), followed by genital herpes by 16 (7.2%). Of the wrongly listed ones, Gonorrhea was listed as incurable by 12.2% of the respondents.

Table 4.7a: Knowledge scale for STI

GRADING FOR THE 20 POINTS KNOWLEDGE SCALE	
Score	**Grade**
10-20	Good
0-9	Poor

Table 4.7b: Respondents' knowledge level of STIs (N=401)

Knowledge Grade	Frequency	%	Mean	Standard deviation
Poor	326	81.3	5.9	±3.6
Good	75	18.7		
Total	**401**	**100.0**		

Tables 4.7a and 4.7b show the knowledge level of respondents. All the 14 variables in the knowledge section were scored and a twenty point knowledge scale was generated. Overall knowledge of STIs was therefore assessed using the 14-item 20 point scale; scores less than or equal to 9 were categorized as poor, while scores greater than or equal to 10 were categorized as good. The results showed that majority of the respondents (81.3%) had poor knowledge of STIs with few (18.7%) having good knowledge. The mean knowledge score for respondents was 5.9 ±3.6.

Section C: Respondents' Risk Perception of STIs

Table 4.8: Respondents' level of fear of contracting STI (n=401)

Level of fear of contracting an STI	Frequency	%
Not afraid at all	198	49.4
Not afraid	101	25.2
Afraid	40	10
Afraid a little	25	6.2
Afraid a lot	37	9.2
Total	**401**	**100.0**

Respondents were asked how afraid they were of contracting an STI. Table 4.8 above shows the distribution of their responses. Some (49.4%) said they were not afraid at all; few (25.2%) said they were not afraid; very few (10%) said they were afraid; 6.2% said they were afraid a little; while 9.2% said they were afraid a lot. In all, majority (74.6%) of the respondents said they were afraid of contracting STIs while only a few (25.4%) of them said they were afraid.

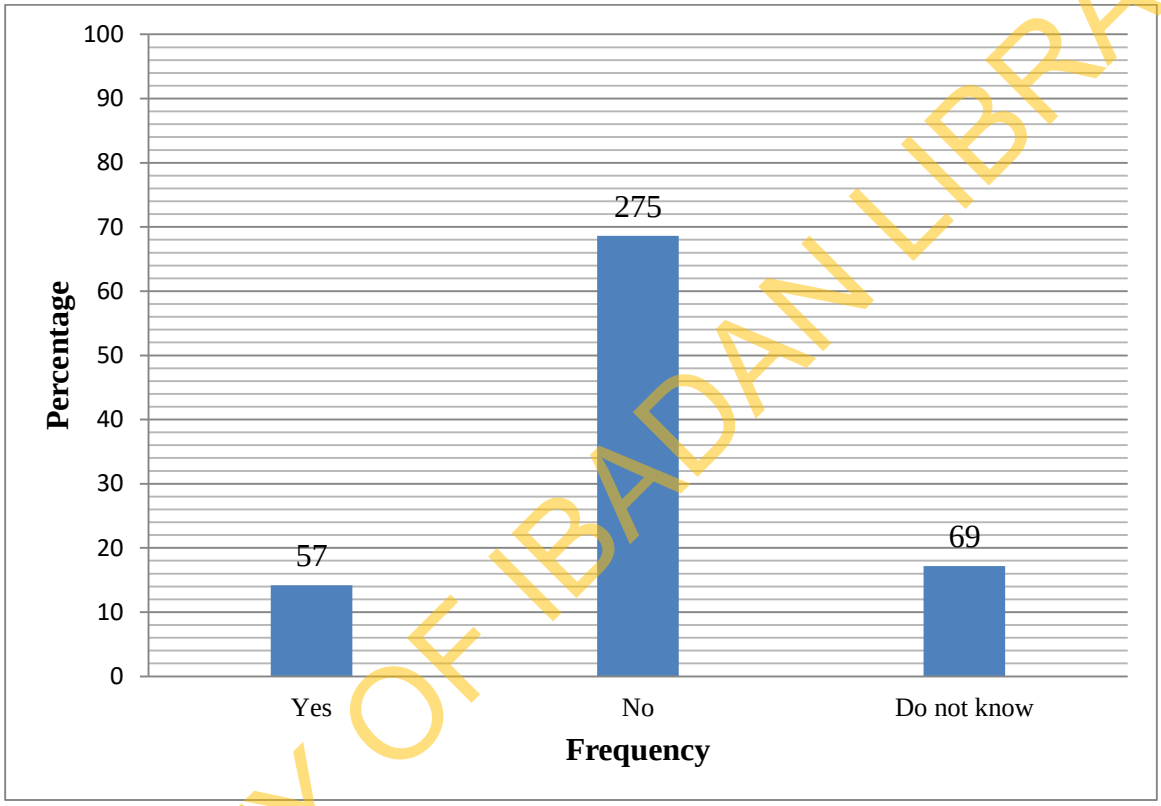

Figure 4.3: Respondents' Risk Perception of contracting STIs due to current Sexual Behaviour

Figure 4.3 presents respondents' distribution when they were asked about their risk perception of STIs due to their current sexual behaviour. Majority (68.6%) of them reported that they did not think that their current sexual behaviour puts them at risk of infection with STIs, few (14.2%) of them agreed; while 17.2% did not know.

Table 4.9: Respondents' general perception of STIs (N=401)

Perception	Frequency	%
STIs are very dangerous killer infections		
Strongly agree	221	55.1
Agree	127	31.7
Undecided	18	4.5
Disagree	26	6.5
Strongly disagree	9	2.2
If someone with STI looks and feels healthy he cannot spread the infection		
Strongly agree	25	6.2
Agree	48	12
Undecided	40	10
Disagree	138	34.4
Strongly disagree	150	37.4
STIs affect only women		
Strongly agree	15	3.7
Agree	7	1.7
Undecided	12	3
Disagree	113	28.2
Strongly disagree	254	63.3
Only promiscuous people contract STIs		
Strongly agree	26	6.5
Agree	52	13
Undecided	53	13.2
Disagree	147	36.7
Strongly disagree	123	30.7
I cannot contract STIs because I am a child of God		
Strongly agree	44	11
Agree	45	11.2
Undecided	59	14.7
Disagree	95	23.6
Strongly disagree	158	39.4
Having more than one sexual partner can increase the risk of contracting STIs		
Strongly agree	200	49.9
Agree	114	28.4
Undecided	29	7.2
Disagree	31	7.7
Strongly disagree	27	6.7

Respondents were asked several questions to assess their general perception of STIs, Table 4.8 shows the result of their general perception of STIs. Majority (86.8%) believed that STIs are dangerous killer infections; majority (70.8%) perceived that a person with an STI can look healthy; majority (71.8%) disagreed that if someone with STI looks and feels healthy he cannot spread the infection; a great majority (91.5%) did not believe that STIs affect only women; majority (67.4%) did not agree that only promiscuous people contract STIs; majority (69.3%) also did not agree that STIs are common among uneducated people in rural areas only; surprisingly, few (22.2%) believed that being a child of God protects them from contracting STIs; majority (78.3%) agreed that having more than one sexual partner can increase the risk of contracting STIs.

4.4. Section D: Respondents' Sexual Behaviours

Table 4.10: Respondents' Sexual Activeness

SEXUAL ACTIVITY	Frequency	%
Had sex in the past 12 months? (n=401)		
Yes	262	65.3%
No	139	34.7%
Respondents whose spouse or boy/girl friend had other sexual partners? (n=262)		
Yes	75	28.6
No	81	30.9
Do not know	106	40.5
Number of sex partners in the last 6 months? (n=262)		
0	31	11.8
1	124	47.3
2-3	80	30.5
4-5	18	6.9
>5	9	3.5

The result of respondents' sexual activeness is presented in Table 4.10. When respondents were asked if they have had sex in the past 12 months, most (65.3%) reported to have had; while 34.7% have never had. Among those that have had sex, 28.6% of them knew that their boyfriend/girlfriend had other sexual partners; 30.9% were certain that their boyfriend/girlfriend did not; while some (40.5%) did not know. Also, of the sexually active respondents, only few (11.8%) have not had sex with anybody in the past six months; some (47.3%) have had sex with only one person; 30.5% have had sex with between 2-3 persons; 6.9% have had sex with between 4-5 persons; while very few (3.5%) have had sex with over five persons. In all, 107 (26.7%) of all the 401 respondents have had sex with more than one person in the last six months.

Table 4.11: Respondents' Risky Sexual Behaviours (n=242)

RISKY SEXUAL BEHAVIOUR	Frequency	%
Frequency of condom use during sex		
Never	60	24.8
Not often	61	25.2
Usually but not always	65	26.9
Always	56	23.1
Use of alcohol before having sex		
Yes	60	24.8
No	182	75.2
Ever smoked before having sex		
Yes	17	7
No	225	93
Use of condom at last sexual intercourse (n=242)		
Yes	101	41.7
No	141	58.3

The result of respondents' risky sexual behaviour is presented in Table 4.10. Responses from married respondents were not included because they all reported having their spouse as their only sex partner; therefore the questions cannot be used as proxies to assess their risky sexual behaviour. Moreover, all most all of them did not respond to the questions. The distribution of sexually active single respondents based on the consistency of condom use with sex partners during sex showed that 24.8% of them have never used condom during sex; 25.2% use condom but not often; 26.9% use condom usually but not always; while 23.1% reported using condom always. Overall, 23.1% of them use condom regularly during sex; majority (52.1%) of them use condom occasionally; while 24.8% do not use condom at all.

Also, on whether respondents or their sex partners have ever used alcohol before having sex, majority (75.2%) of the sexually active single respondents have never used, while few (24.8%) have used alcohol. On smoking before having sex, all most all (93%) of them have never done it, while only a very few (7%) reported that they or their sex partners have smoked before sex. Respondents were also asked whether they or their sex partner used a condom the last time they had sex: many (58.3%) of them did not use; while some (41.7%) of them used.

Table 4.12: Respondents' Current STI Preventive Behaviours (N=401)

S/N	STI Preventive Behaviour**	Frequency	%
1	Using protection/condom during sex*	123	30.7
2	Abstaining from premarital sex*	87	21.7
3	Faithfulness to only one sex partner*	46	11.5
4	Avoid having casual sex*	44	11
5	Personal hygiene*	34	8.5
6	Not sharing any sharp object such as needles, syringes or piercing materials*	30	7.5
7	Regular monthly checkups*	13	3.2
8	Reducing sex/sexual activity*	12	3
9	Avoiding close contacts with infected persons*	10	2.5
10	Maintaining good health*	9	2.2
11	Get more knowledge on STI*	7	1.7
12	Not having a boyfriend/girlfriend*	4	1
13	Avoid all intimate/sexual contact*	4	1
14	Reducing sex partners*	1	0.2
15	Using medications/drugs	14	3.5
16	Prayers	9	2.2
17	Nothing	9	2.2
18	Good nutrition	9	2.2
19	Environmental sanitation	6	1.5
20	Avoid fondling with the genitals of sex partner	4	1
21	Using the withdrawal method	1	0.2
22	Taking alcohol after sex	1	0.2
23	Avoiding smoking and alcohol use	1	0.2

**Multiple responses were included
*Correct responses

Respondents were asked to mention two things they were currently doing to avoid getting STIs. A list of the current STI preventive behaviour among respondents is presented in Table 4.11. The two most frequently mentioned preventive behaviours were: use of protection/condom (30.6%) and abstinence from premarital sex (21.7%). However, some respondents (8.5%) reported using personal hygiene as a preventive measure. Surprisingly, 9 respondents (2.2%) believed that by praying to God they are being protected from contracting STIs; another 9 respondents (2.2%) currently ate well as a means of preventing STIs; while 1 person was currently using withdrawal method as a preventive behaviour for contracting STI

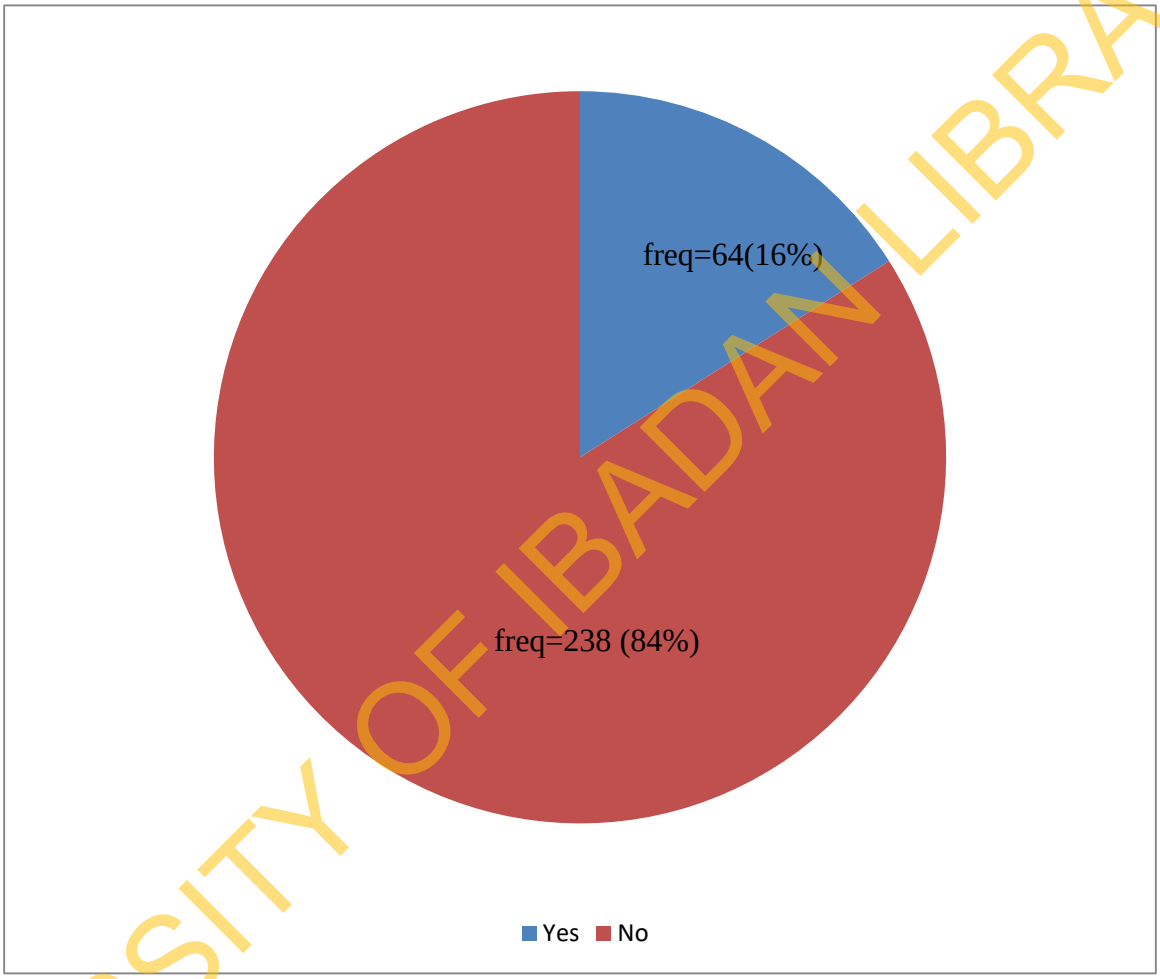

Figure 4.4: Awareness of STI programme conducted in the school

4.5. Section E: Reported Prevalence of STI Symptoms among Respondents

Table 4.13a: Respondents' Reported Prevalence of STI Symptoms based on individual symptom (n=401)

STI Experience	Frequency	%
Bad-smelling, abnormal discharge from the vagina or penis		
Yes	29	7.2
No	353	88
Cannot remember	19	4.7
Genital sore/ulcer or blister		
Yes	24	6
No	365	91
Cannot remember	12	3
Pain during urination		
Yes	31	7.7
No	365	91
Cannot remember	5	1.2
Prevalence of STI symptoms = 20.9%		

Table 4.13b: Reported Prevalence of STI Symptoms based on individual respondent

Number of symptoms experienced	Frequency	%
0	326	81.3
1	66	16.5
2	9	2.2
Total	**401**	**100.0**
Experienced symptom= 75 (18.7%)		

Table 4.12a and b shows the self-reported prevalence of common STI symptoms among respondents. Respondents were asked if in the past 12 months they experienced any of three common symptoms associated with STIs: a bad-smelling, abnormal discharge from the vagina or penis; a genital sore/ulcer or blister; and pain during urination. To ensure that the symptoms reported were actually due to STIs, only symptoms reported from sexually active respondents were considered. Overall, the prevalence of all STI symptoms in the past 12 months among respondents was 20.9%: 7.7% of respondents reported having experienced pain during urination; 7.2% have experienced a bad-smelling, abnormal discharge from the vagina or penis; while 6% have experienced a genital sore/ulcer or blister. However, only few (18.7%) respondents have experienced one or more STI symptoms in the last 12 months preceding this study.

4.6. Section F: Respondents' Treatment Behaviours towards STIs

Table 4.14: Respondents' preferred treatment options (n=401)

BEHAVIOUR	Frequency	%
Treatment preference		
Nothing	20	5.0
Self medication	26	6.5
Visit a health facility for treatment	320	79.8
Visit a traditional healer for treatment	17	4.2
Visit a PMV/Chemist (medicine seller) for treatment	27	4.5
Promptness of treatment action		
Within one week	271	67.6
After one week	39	9.7
When the symptoms fail to disappear	91	22.7

Respondents were asked the preferred treatment action they will take if they found out that they have an STI/STI symptom. Table 4.13 illustrates the results from respondent's treatment preferences. Majority of them (73.3%) reported that they will visit a health facility for treatment; 7.5% will self medicate; 6.7% will visit a PMV/chemist (medicine seller) for treatment; 6.5% will not do anything; while 6% will visit a traditional healer for treatment. When respondents were asked how soon they will take action if they found out that they had an STI/STI symptom, majority of them (67.6%) reported that they will act within one week; 22.8% will act only when the symptom fail to disappear; while few (9.7%) will take action one week after the onset of the symptom.

Table 4.15: Respondents' probable reasons for delay in treatment action (n=130)

Reason**	Frequency	%
Want to be sure before going for treatment	93	71.5
Lack of money to afford the cost of treatment	70	53.8
Not knowing what the symptom(s) is	66	50.8
Health workers in STI treatment facilities are not friendly	54	41.5
Not noticing the symptom(s) early	41	31.5
Not knowing the right place to go for treatment	37	28.5
Ashamed of meeting people who may know me at the health facility	36	27.7
If I think it is not very serious	35	26.9

**Multiple responses were included

Respondents were further asked to tick possible reasons from a list of options provided why they would delay treatment if they found out they had an STI/STI symptom. Reasons given by those who would take action after one week and those who would take action only when the symptoms fail to disappear were pooled together; table 4.14 shows the pooled result. The most frequently ticked options were: "want to be sure before going for treatment" (71.5%); "lack of money to afford the cost of treatment" (53.8%); "not knowing what the symptom is" (50.8%); and "health workers in STI treatment facilities are not friendly" (41.5%).

Table 4.16: Persons respondents would talk to if they found out they had an STI/STI symptom (n=401)

Persons**	Frequency	%
Health worker or doctor	257	64.1
Parents or guardian	201	50.1
Spouse or boyfriend/girlfriend	163	40.6
Siblings and close relatives	75	18.7
Friends	74	18.5
Nobody	48	12
God	10	2.5

**Multiple responses were included

Respondents were then asked whom they would talk to if they found out that they had an STI/STI symptom. The result for this is presented in Table 4.15 above. Majority of them (64.1%) reported that they would talk to a health worker or physician about it; many of them (50.1%) would talk to their parents or guardians; some of them (40.6%) would talk to their spouse or boyfriend/girlfriend; a few of them (12%) would not talk to anybody; while a very few of them (2.5%) would pray or talk to God.

4.7. Hypotheses Tests

1. There is no association between the gender of respondents and their knowledge level of common STI symptoms.

Table 4.17: Distribution of respondents based on gender and knowledge of at least one common STI symptom

Gender	Knowledge of at least one common STI symptom		Total	X^2	p value
	Yes, n (%)	No, n (%)			
Male	96, (38.7%)	152, (61.3%)	248	3.353	0.067
Female	73, (47.7%)	80, (52.3%)	153		
Total	169, (42.1%)	232, (57.9%)	401		

Table 4.17 above shows the result when the relationship between respondents' knowledge of common STI symptoms and their gender was compared. More females (48%) had knowledge of at least one common STI symptom than males (38.7%). However the observed difference was not statistically significant ($p>0.05$).

2. There is no association between the gender of respondents and the reported prevalence of common STI symptoms among them.

Table 4.18: Distribution of respondents based on Reported Prevalence of common STI symptoms and gender

Gender	**Reported prevalence of common STI Symptoms**		Total	X^2	P value
	Yes, n (%)	No, n (%)			
Male	40, (24%)	127, (76%)	167	4.924	0.026
Female	35, (36.8%)	60, (63.2%)	95		
Total	75, (28.6%)	187, (71.4%)	262		

When the relationship between gender of sexually active respondents and their reported prevalence of common STI symptoms was compared as presented in Table 4.18 above, females (36.8%) reported to have experienced more STI symptoms than males (24%). The observed difference was found to be statistically significant ($p<0.05$).

3. There is no association between rate of condom use among respondents and their risk perception of contracting STIs.

Table 4.19: Distribution of respondents based on rate of condom use and Risk Perception of contracting STIs

Condom use	At risk of contracting STIs due to current sexual behavior			Total	X^2	P value
	Yes, n (%)	No, n (%)	Do not know, n (%)			
Never used	8, (13.3%)	41,(68.3%)	11, (18.3%)	60	7.286	0.295
Occasional users	26, (20.6%)	78, (61.9%)	22, (17.5%)	126		
Regular users	14, (25%)	38,(67.9%)	4, (7.1%)	56		
Total	48, (19.8%)	157,(64.9%)	37, (15.3%)	242		

The relationship between rate of condom use among single sexually active respondents and their risk perception of contracting STIs was also compared as shown in Table 4.19 above. The analysis showed that while the majority (68.3%) of respondents who had never used condom during sex did not consider themselves to be a risk of contracting STIs; only a few (13.3%) of them considered themselves to be at risk; 18.3% could not say whether they were at risk or not. Among respondents who used condom occasionally, the majority (61.9%) of them did not consider themselves to be at risk; few (20.6%) considered themselves to be at risk; while 17.5% could not say whether they were at risk or not. Among respondents who used condom regularly, the majority (67.9%) of them did not consider themselves to be at risk; few (25%) considered themselves to be at risk; while 7.1% could not say whether they were at risk or not. Surprisingly, the proportion of respondents who considered themselves to be at risk of contracting STIs was higher among regular condom users (25%) than occasional users (20.6%) and non users (13.3%). The observed relationship was not statistically significant ($p>0.05$).

4. There is no association between respondents' perception of the risk of having multiple sex partners and the practice of having multiple sex partners.

Table 4.20: Distribution of respondents based on perception of the risk of having Multiple Sex partners and the practice of having Multiple Sex partners

Having multiple sex partners increases the risk of contracting STIs	**Multiple sex partners**		Total	X^2	P value
	Yes n, (%)	No n, (%)			
Agree	78, (24.8%)	236, (75.2%)	314	8.251	0.083
Undecided	12, (41.4%)	17, (58.6%)	29		
Disagree	17, (29.3%)	41, (70.7%)	58		
Total	107, (26.7%)	294, (73.3%)	401		

Table 4.20 shows the result of the relationship between respondents' perception of the risk of having multiple sex partners and the practice of having multiple sex partners. Majority (75.5%) of those who agreed that having multiple sex partners increases the risk of getting STIs did not have multiple sex partners; while only few of them (24.8%) had. Among those that were undecided, many (58.6%) of them did not have multiple sex partners while some (41.4%) of them had. Majority (70.7%) of those that disagreed also did not have; while few (29.3%) of them had. However, those that agreed had the lowest proportion (24.8%) of multiple sex partners when compared to those that disagreed (29.3%) and those that were undecided (41.4%). The relationship was however not statistically significant ($p>0.05$).

5. There is no association between the reported experiences of STIs among respondents and their risk perception of contracting STIs.

Table 4.21: Distribution of respondents based on Reported Experiences of STI symptoms and the Risk Perception of contracting STIs

Experience of Common STI Symptoms	**At risk of contracting STIs due to current sexual behavior**			Total	X^2	P value
	Yes n, (%)	No n, (%)	Do not know n, (%)			
Yes	19, (25.3%)	39, (52%)	17, (22.7%)	75	10.578	0.005
No	32, (17.1%)	135, (72.2%)	20, (10.7%)	187		
Total	51, (19.5%)	174, (66.4%)	37, (14.1%)	262		

Table 4.21 shows the relationship between the reported experiences of STI symptoms among sexually active respondents and their risk perception of contracting STIs. More (25.3%) of the respondents who reported having experienced an STI symptom considered themselves to be at risk of contracting STIs than those who had not experienced (17.1%). The relationship was found to be statistically significant ($p<0.05$)

6. There is no association between the practice of having multiple sex partners among respondents and their risk perception of contracting STIs.

Table 4.22: Distribution of respondents based on having Multiple Sex Partners and the Risk Perception of contracting STIs due to current Sexual Behaviour

Multiple sex partners	**At risk of contracting STIs due to current sexual behavior**			Total	X^2	P value
	Yes n, (%)	No n, (%)	Do not know n, (%)			
Yes	29, (27.1%)	59, (55.1%)	19, (17.8.7%)	107	20.762	0.000
No	28,(9.5%)	216, (73.5%)	50, (17.0%)	294		
Total	57, (14.2%)	275, (68.6%)	69, (17.2%)	401		

Table 4.21 shows the relationship between the practice of having multiple sex partners and the risk of contracting STIs due to current sexual behaviour. The risk of having STIs was more (27.1%) among those who had multiple sex partners when compared to those (9.5%) without multiple sex partners. The relationship was found to be statistically significant ($p<0.05$).

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

Important aspects of knowledge, perception and behaviour towards STIs in the investigated population were made evident. The study found out that rate of cohabitation was quite high as over one in every five respondents had cohabited. Knowledge of common STI symptoms was low among the polytechnic students. It was just only about one in ten students that were able to identify two common symptoms of STIs. The overall knowledge score of respondents was also very low. Risk perception was also low and while it was not associated with rate of condom use, it was associated with previous experience of STI symptoms and having multiple sex partners. More than half of the respondents were sexually active with few having multiple sex partners in the past 6months. The rate of regular condom use among sexually active respondents was very low. The reported prevalence of STI symptoms was quite high with pain during urination being the most reported symptom; gender was found to be a determinant factor for reporting symptom. More than two third of the respondents would prefer to visit a health facility for treatment if they become infected with an STI and majority of them indicated that they would act within one week. Major barriers that could prevent seeking prompt and appropriate treatment were: wanting to make sure before going for treatment, lack of money to afford treatment and lack of knowledge of the symptoms.

5.2.0. Discussion of Findings

5.2.1. Socio-demographic Characteristics

In this study there were more males than females, a possible explanation for this difference may not be far from the fact that males are usually more interested in technical skills than females, hence being an institution that offers technical education, more males are expected to be attracted to it. Most of the respondents were between 20 and 24 years with a mean age of 22±3.4 years and majority of them were single. Similar findings were reported by Imaledo et al. (2012), Ogadimma (2013) and Kadiri, Ahmad and Mustaffa (2014) in studies among students of tertiary institutions. This emphasizes the assertion that majority of students in tertiary institutions are single, young adults with unhealthy

youthful exuberance, this coupled with the liberal nature of campus life predisposes them to high risk sexual behaviours.

Most of the respondents in the study lived outside the school hostel popularly called off campus, and of the 215 single students living off campus, 27.9% had cohabited. This reflects the assertion that young people usually take advantage of the absence of parental control while in school to initiate risky sexual behaviours especially cohabitation in order to fully express their sexual drives (Iwuagwu, Ajuwon, Olasheha, 2000). This result is not far from that discovered in another study among students of the University of Portharcourt, Nigeria (Imaledo et al., 2012).

The high number of respondents of south-west origin is not surprising since the University is situated in the south-west part of the country. Also, the high number of students who are of the Christian faith may be because Christianity is popular among people in the region. The relatively good number of Muslims also shows that Islam may also be commonly practiced in the region.

5.2.2. Knowledge of STIs

The STIs most often listed were HIV/AIDS, gonorrhea, syphilis and Ebola, knowledge of the other different types of STIs was generally very low. There were also some misconceptions as considerable number of respondents perceived staphylococcal infections, diarrhoea and eczema as STIs. A previous study suggested that people's misconception and lack of knowledge about the major non-STIs put them more at risk of indulging in sexual behaviours that may predispose them to STIs (Hingson, Strunin, Berlin and Heren, 1990). Another study also added that the information young people especially from Africa have about STIs have been shown to be inadequate and inaccurate (Haider, Saleh, Kamal, 1997). This also increases the potential for underestimating risk and thus engaging in practices that promote the spread of STIs.

Similarly, knowledge of STI symptoms was also very poor, it was just slightly over one in every ten students that were able to list two symptoms of STIs. This was even lower than the figures reported in previous studies conducted in Ethiopia (Cherie & Berhane, 2012) and in the Northern part of Lao PDR (Sychareun et al., 2013).

Many studies in Nigeria have reported quite a high level of knowledge of STIs (Makwe & Ahmad, 2014; Agboola, 2010; Adegun et al., 2013), however, the findings on knowledge in this study is quite at variance, as the mean score of overall knowledge of STIs was 5.9 out of 20, suggesting poor knowledge. A notable explanation for this remarkable difference in knowledge level between this study and the aforementioned is that, while the previous studies assessed respondents' knowledge based on their awareness of STIs, this study based its assessment on actual knowledge of types, symptoms and complications associated with STIs. The use of open ended questions in assessing respondents' knowledge on STI also ensured that the result reflects what they actually know. This result also clearly contradicts that of a previous study in South Africa where the study results indicated almost 100% awareness or recognition by respondents of STI symptoms (Govender & Eche, 2012). The poor knowledge level discovered by this study is a wakeup call to all and sundry that more effort is needed in providing adequate knowledge to the teeming youths in the country on healthy sexual lifestyle. The fact that this study was conducted in a tertiary institution where the respondents are expected to be more knowledgeable and aware of important reproductive health issues makes the case even more worrisome.

Although this study found that the proportion of females (48%) with knowledge of at least one STI symptoms was higher than males (38.7%), the difference was not statistically significant, this was also confirmed by a similar study among youths in Nigeria (Mmari et al., 2010) . This was however different from the findings of Cherie and Berhane in which gender was statistically significant with knowledge of STI symptoms with males having more knowledge than females. For this study the higher STI symptom knowledge level of females could be explained from the fact that they reported more experiences of STI symptoms, their better knowledge could therefore be from this previous experience.

5.2.3. Risk Perception of STIs

The study revealed a tendency for the respondents to underreport their risk of contracting STIs because despite the fact that over one in every five respondents had multiple sex partners in the past six months; and the rate of regular condom use among single sexually active respondents being quite low (23.1%) with over two third having either used occasionally or never used at all, only few (14.2%) reported that they were at risk of contracting STIs due to their current sexual behaviour. These findings were consistent with previous studies carried out elsewhere (Prata, Morris, Mazive, Vahidinia and Stehr, 2006; Bruinede, Downs and Fischhoff, 2007; Adedimeji, Omololu & Odutolu, 2007). This could be a reflection of their low level of knowledge about STIs and the low knowledge of what should be considered risk factors for STIs. Misconceptions and erroneous views about STIs transmission may influence decisions and also make the person interpret the actual odds of getting an infection wrongly which vary across cultural context. The other reason could be that the participants did not know how to assess their risk and they may not have been able to apply their knowledge of disease transmission to assess their risk level every time they engaged in sexual activity.

The study found no statistically significant association between the rate of condom use and level of risk of contracting STIs. This contradicts the findings of a similar study in the University of Abuja (Makwe and Ahmad, 2014). However, there was a statistically significant association between previous experience of STI and risk perception of contracting STI. This is in tandem with previous studies done among similar respondents (Diclemente, Crittenden, Rose, Sales, Wingood, Crosby and Salazar, 2008; Sychareun et al., 2013). This could be explained by the fact that those who had STIs had become aware that they were not immune to the infections. Having an STI symptom might lead adolescents to get to know prevention measure of STIs. This knowledge facilitates adolescent's awareness and might assist them to identify risky situations.

One striking finding in this study was that there was no statistically significant association between the perception that having more than one sexual partner can increase the risk of contracting STIs and the practice of having multiple sex partners. Based on an underlying KAP assumption, it is expected to find the proportion of multiple sex partners

among those who agreed that having multiple sex partners will increase the risk of contracting STIs to be significantly lower than those who disagreed. The fact that there was no statistically significant association between both variables was therefore surprising. Similar discovery was made in a previous study in Benin, Nigeria which revealed that perception of risk does not necessarily translate into safe behavior (Temin et al., 1999). This may point to an ineffectiveness of KAP assumptions in explaining this area of risk and prevention practice indicating that educational programs cannot simply focus on the negative consequences of behaviour alone.

5.2.4. Risky Sexual Behaviour

Among the single respondents, majority were sexually active, this is confirmed by the National Demography Survey Data (NDHS 2013) which revealed that over half (50.8%) of adolescents aged 20-24 were sexually active (NPC & ICF International, 2014). In this study, almost two out of every three (65.5%) students have had sex in the past twelve months preceding the study. This is quite notable because it shows that more young people in higher institutions are getting sexually active and most lack the necessary reproductive health information to practice safe sex. This finding also agrees with the findings of previous studies in Nigeria that have reported a high and increasing rate of sexual activity among young people and adolescents (FMOH/NARHS, 2005; Bankole, Oye-Adeniran, Singh, Adewole, Wulf, Sedgh & Hussain R, 2006; Imaledo et al., 2012; NPC & ICF International, 2014). This study also confirmed that premarital sex appears to be increasing among young people as they delay marriage for the purpose of acquiring formal education.

Furthermore, the findings in this study confirmed the claim that sex is a phenomenon currently ravaging higher institution in Nigeria as a lot of students are engaged in premarital and heterosexual relationships on campus (Magnus & Gbakeji, 2009). The findings of this also study agrees with other researchers' point of view that in Nigeria and all over the world, the long years of continued education has created a big gap between the age of puberty and age at marriage, thus increasing the likelihood of sexual initiation and unprotected premarital sex which eventually create the situation where people are students, single and at the same time sexually active. The consequence of this is an

increase in the rate of unplanned pregnancies, STIs and other problems associated with unprotected premarital sexual activities.

Another important result from this study which is related to sexual behaviour was the practice of having multiple sex partners in the last six months prior to the study. A considerable proportion (26.7%) of the entire 401 respondents reported two or more sexual partners, while 75 respondents (28.6% of the sexually active respondents) confirmed that their current sexual partner had another sexual partner. The prevalence of multiple sex partners recorded in this study is quite lower when compared with that of a previous study among students of the University of Ilorin where 62.3% have had more than one (1) sexual partner in the last 2 months that preceded the study (Fawole, Ogunkan & Adegoke, 2011).

Among the single respondents who reported to be sexually active in the past twelve months, a great majority (76.9%) reported having never used a condom or used occasionally. Among same group also, more than half (58.3%) did not use a condom the last time they had sex. This is even higher than the findings of Makwe and Ahmad, (2014) who reported that only about 32.6% of students used condom at the time of their last sex. Another study conducted in Kano, also gives credence to this as it reported low condom use among respondents (Kabir, Iliyasu, Abubakar & Kabir, 2010). The low percentage of people using condoms, suggests that students may have unrealistic ideals about their ability to develop disease and the perception that bad things only happen to other people. With ideals such as this, the practice of safe sex is not viewed as a necessity and, therefore, not practiced consistently.

The practice of having multiple sex partners was found to influence students' perception of their risk of contracting STIs due to their current sexual behaviour. The risk of having STIs was more (27.1%) among those who had multiple sex partners when compared to those (9.6%) without multiple sex partners.

The prevalence of risky sexual behaviours discovered among respondents in this study which is in line with previous studies calls to question the various efforts in the recent past from stakeholders to address the issue of risky behaviours among young people,

most especially those in higher institutions. With the high level of awareness of STIs among young people in Nigeria as reported by Omoregie (2002), Adedimeji (2003) and the 2013 NDHS (NPC & ICF International, 2014) one would have expected that this knowledge would have translated to practice but these results point to the contrary. Risky sexual acts are still common occurrences among students in higher institutions. For example, in a research conducted among fresh students of tertiary institutions in Rivers State, risky sexual practices recorded among students included: having sex without condom (57.0%), having had multiple sexual partners (42.1%) and use of condom at first sexual encounter (22.8%). Some had multiple current partners with 3.5% having 4 to 6 current partners (Ibe and Ibe, 2003).

Various factors have been adduced for these risky behaviors among young people in Nigeria, these include: lack of communication between parents and children about sex; high level of illicit sexual activity; poverty or hash economic conditions among other factors. The school authority needs to re-strategize to find a better way of using the high awareness of STIs to change both the behaviour and practice of students if the war against STIs will ever be won in Nigeria and among young people in particular.

This study also found out that there may not have been any intervention or sensitization programme on STIs in the school for a long time because majority of the respondents across each level reported that they had not experienced any programme of such. This may be the reason behind the low level of knowledge of STIs among the students. The danger behind this cannot be overemphasized. The school management and other relevant agencies must therefore take action in reversing this trend.

5.2.5. Reported Prevalence of STI symptoms

The prevalence of common STI symptoms among respondents in the twelve months preceding the study was 18.7%, this figure was close to the 17.9% prevalence reported by Cherie and Berhane, (2012) among High school adolescents in Ethiopia. These findings are in stark contrast to the very low (2%) prevalence that was recorded in Burkina Faso (Biddlecom et al., 2007). The most common STI symptoms reported in this study were pain when urinating; abnormal discharge from the vagina or penis; and genital sore/ulcer or blister. Similar trend was reported in a Lao PDR study although the prevalence was much lower (Sychareun et al., 2013). Two of the symptoms reported in this study: abnormal discharge from the vagina or penis; and genital sore/ulcer or blister were also reflective of the findings of WHO (WHO, 2007) and a previous study in South Africa (Govender & Eche, 2012).

In this study, more females reported to have experienced an STI symptom when compared to males. This is similar to the findings of the NARHS Plus 2007 (FMOH Nigeria, 2008), the NDHS 2013 (NPC & ICF International, 2014) and Mmari et al. (2010). However, this is inconsistent with the findings of Govender and Eche, (2012) and Biddlecom et al., (2007) which reported a higher prevalence of STI symptoms with males than females. The association between gender and reported STI symptom in this study was found to be statistically significant. Similar significance was reported in Lao PDR although unlike in this study, males were more likely to report symptoms than females (Sychareun et al., 2013). This study contradicts the assertion that females are less frequently and less clearly symptomatic than males (Fortenbery, 1997) and are therefore expected to report less symptoms than males. However the fact that it has also been documented that males tend to see STI symptoms as a normal process of growing up (ZNFPC, 1996) may also account for the reason why they have reported less. It may also be due to the symptoms that were used as proxies for STIs as genital discharge and genital sore/ulcer or blister are naturally more common among females and may not be necessarily due to STIs.

5.2.6. Treatment Preferences

The study found out that majority of the respondents would prefer to visit a health facility for treatment if they found out they have an STI. A considerable proportion also reported that they would not do anything about it. Preference does not always translate into practice as depicted by the contrasting figures of STI patients who actually seek proper health care for their ailment in most studies. For instance, among sexually-active adolescents with STIs in a study conducted in four African countries, the proportion not seeking any care was quite large: more than two-thirds in Ghana, about half in Malawi and a little under half in Uganda (Biddlecom et al., 2007). This is similar to the figures reported by the NARHS Plus (2007) (FMOH Nigeria, 2008) and the NDHS, 2013 (NPC & ICF International, 2014) where the proportion of STI seeking care in health facilities was between 35-45% while between 20-27% did nothing. Evidence from some developing countries suggests that the majority of adolescents who have tested positive for STIs or reported STI symptoms first try to treat their infections themselves or seek treatment from non-professional providers (e.g., traditional healers, patent medicine sellers), and only turn to public health clinics or formal health care providers as a last resort (Brugha & Zwi, 1999; Dehne & Riedner, 2005; Cherie & Berhane, 2012).

Also, majority of the respondents in this study reported that they would take action within a week of noticing a STI symptom, while a high proportion (91, 22.7%) would only take action when the symptom fail to disappear. This finding was reflected in a study in South Africa where a vast majority of STI patients sought help for their symptoms, mostly within one week (Govender & Eche, 2012). This may however be due to the easy and equitable accessibility to primary healthcare facilities available in the country. The situation may be different from other less developing African countries like Nigeria where the healthcare delivery system is not as organized, accessible and equitable.

Disclosure is a very vital step towards appropriate treatment action therefore this study attempted to explore the willingness of respondents to disclose their STI status. To actualize this, they were asked whom they will talk to about their illness if they found out they had an STI; majority said they would talk to a health worker, about half of them said

they would inform their parents while some said they would inform their sex partners. In contrast, previous studies have reported that very few young people share information about their experience of STIs (MSI, 1995; Brabin, 1998). The difference observed in this study could because the responses were not respondents' actual practices in terms of disclosure but what they would prefer probably under ideal conditions, it is a fact that conditions are not always ideal.

When the possible barriers that may hinder the respondents from prompt or appropriate treatment action were assessed, many of them said they would delay or do nothing because they would want to be sure of the symptom before going for treatment; many mentioned lack of money and knowledge of the symptom. Respondents were less bothered about not knowing where to go for treatment, being ashamed or unfriendly health staff in treatment facilities. The results from a previous study contradicts this finding as the most common barrier for young people to obtaining either contraceptive methods or STI diagnosis and treatment was reported to be social stigma (e.g., fear or embarrassment) and to a significant but lesser degree, cost, provider characteristics and lack of knowledge about service sources (Biddlecom et al., 2007). These barriers are echoed in a number of other studies (Kiapi-Iwa & Hart, 2004; Amuyunzu-Nyamongo, Biddlecom, Ouedraogo, Woog, 2005; Dehne & Riedner, 2005), and highlight the need to better address the obstacles that continue to persist over time and which cut across all types of sexual and reproductive health services. In particular, the social stigma attached to service utilization may partly explain why young people's needs to access reproductive health services are not being optimally met.

It is quite worthy of note that literatures have shown that preference does not actually translate into actual practice as there are lots of socio-economic, intra-personal and cultural factors that may interfere between preference and actual access to health care especially among young people in developing countries. However, the positive findings on treatment preferences from this study should not be discarded because they may reflect the actual action that young people will take under ideal conditions or when the identified barriers are reduced to the barest minimum.

5.3. Health Education Implications

One basic principle on which health education is founded is the Knowledge, Attitude and Practice (KAP) principle. According to Johnson et al., (1999), correct knowledge about symptoms and methods of preventing STIs is an essential starting point in the behaviour change process for individuals who have misconceptions about behaviors that prevent STIs and symptoms that reflect STIs (Johnson, Rozmus and Edmisson, 1999). Such misconceptions may lead to the use of ineffective STI protective strategies in place of effective ones, less acceptable strategies, for example douching instead of condom use. The observed prevalence of risky sexual behaviours recorded in this study could be explained from the low level of knowledge of STIs recorded in the study. The KAP principle holds that knowledge to a large extent determines attitude and perception towards an illness which will subsequently transform into adoption of appropriate preventive behaviour to avoid risk. Therefore the observed risky sexual behaviours among respondents can be corrected by raising their knowledge and awareness on STIs using the appropriate health education method. Young people have been known to be greatly influenced by peer social norms; the use of peer education will therefore be a very effective intervention for this group.

Apart from knowledge and awareness, another notable area of STI and students in this study dealt with barriers that may prevent them from accessing health services to treat their infections. It therefore behoves on health education practitioners to know how best to organize health education activities to ensure that students take prompt medical treatment as their first treatment option once they become infected with STIs. The first step to achieving this is to develop a curriculum on STI education with contents that will cover important areas such as “types of STIs”, “common and specific symptoms of STIs”, “consequences and complications of STIs and their effects on reproductive health”, “appropriate preventive measures”, “benefits of prompt medical treatment of STIs”, and “facilities where age appropriate treatment and counseling can be gotten”. Such curriculum can then be introduced into the General Studies (GNS) course of tertiary institutions.

The Department of Health Promotion and Education of the Faculty of Public Health, University of Ibadan in conjunction with youth leaders of various CBOs, Peer educators and NGOs interested in reproductive health can also make use of the developed curriculum to organize workshops and seminars for students of various tertiary institutions. Facilitators for such intervention will include Health Educators, Sexuality and Reproductive Health Practitioners, Health workers, Peer educators from amongst the institutions. The expected outcome from such programme will be empowerment and capacity building of students to have the necessary information required for them to easily recognize early symptoms of STIs and to know where to go for appropriate and friendly treatment.

Finally, the use of appropriate mass education methods will also go a long way in reinforcing knowledge of STIs among young people as well as create an urgent need for adoption of practices that will reduce the incidence and prevalence of STIs among students and young people generally. This can be achieved by the collaborative effort of the Health and Education sectors together with Sexuality and Reproductive health NGOs. This will involve the use of various channels of communication that can capture the attention of students and young people, such channels will include: the mass media, interpersonal communication, crusades and campaigns as well as various internet driven social media such as facebook, whatsapp, twitter, linkedIn,snapchat, instagram, skype, yahoo messenger, BBM, etc.

5.4. Conclusion

The above study examined the knowledge, risk perception and sexual behaviour of students of The Polytechnic, Ibadan. It was discovered that more than half of the students live off campus, and some of them have cohabited. Meanwhile, cohabitation has been reported to be a precursor to many risky sexual practices among young people. This may have contributed to the levels of risky sexual practices and prevalence of STI symptoms recorded in this study.

Generally it was found that knowledge about STIs was very poor and the students were not aware of the symptoms of STIs. The evidence on lack of knowledge shows that there is great need for more widespread provision of information on STIs and their symptoms. This is paramount because of the enormous influence knowledge has on risk perception and behaviour.

The effect of the poor knowledge reported in this study was reflected in the levels of risk perception and sexual practices recorded. Although students engaged in high risk sexual behavior which apparently resulted to the prevalence of STI symptoms recorded, they still reported their level of risk of contracting STIs to be very low. More effort is therefore needed in implementing strategies that will increase STI risk perception among students with the aim of influencing the practice of preventive behaviours.

Nigeria, while developing industrially, also is going through perceptible changes socially and culturally. These changes seem to exert a considerable effect on the already complex nature of the country's young adult population. The study reported a significant prevalence of risky sexual behaviours such as multiple sex partners and non-condom use among students. This calls for more attention in the area of promoting contraception practice among students of tertiary institutions.

The study also reported a significant prevalence of STI symptoms among students; this is probably an offshoot of their low risk perception and dominant risky sexual practices. It is very vital that steps be taken to reduce this prevalence as much as possible because of the great proportion of young people in our population structure today.

The study found that students will prefer to visit health facilities for treatment, take prompt action and talk to someone about their illness when they become infected with STIs. Major barriers for not seeking treatment for STIs were: wanting to be sure before going for treatment, lack of money to afford the cost of appropriate treatment and lack of knowledge of the symptoms. Although this study did not assess the actual treatment practice of students, the preferences mentioned can go a long way in helping to design appropriate intervention for the target population.

Although female tended to have more knowledge of STI symptoms than males, the difference was not large enough to be statistically significant. The study also found no association between condom use and risk perception of contacting STIs; between perception of the risk of having multiple sex partners and the practice of having multiple sex partners. However, the result showed an association between gender and prevalence of STI symptoms; between previous experience of STI symptom and risk perception of contracting STIs; and between having multiple sex partners and the risk perception of contracting STIs due to current sexual behaviour.

These results, added to information from other studies, lead to the conclusion that practicable interventions among tertiary school students which will contribute to the monitoring of measures and strategies to prevent sexually transmitted infections among them need to be planned and implemented.

5.5. Recommendations

1. The findings of this study show that school students are not sufficiently informed about types, symptoms, measures to avoid getting STIs, risk behaviours and complications of STIs. Inclusion of basic facts about STIs in sexuality education and the school curriculum to boost up knowledge of STIs and thereby reduce the transmission and increase the prevention of STIs is necessary.

2.While increasing the provision, quality and coverage of sex education within schools is one important means of improving adolescent's knowledge of prevention of STIs, other avenues must be pursued to provide information and link those who need services with the places that provide them. The establishment of youth driven clubs for reproductive health purposes is an effective way of achieving this.

3. With about 13% of respondents preferring to use patent chemist store and traditional healers for treatment if they become infected with STIs, intervention to improve the management practice of the operators of these facilities is important particularly focusing on syndromic management, counselling and appropriate referral.

4. This study and previous ones have addressed the failure of the KAP assumption to always produce the desired effect; STI awareness and/or perceptions of risk will not always suffice in influencing prevention behavior. This therefore calls for a rethinking of educational and public policy in efforts to promote practices that will reduce STI burden. A deeper understanding into the actual barriers individuals experience in engaging in prevention behavior, with subsequent strategizing to alleviate these barriers, is necessary in the sphere of public health promotion.

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APPENDIX

QUESTIONNAIRE

KNOWLEDGE OF COMMON SYMPTOMS, RISK PERCEPTION AND TREATMENT BEHAVIOURS OF SEXUALLY TRANSMITTED INFECTIONS AMONG STUDENTS OF THE POLYTECHNIC, IBADAN, OYO STATE

Dear Respondent,

I am part of the team undertaking a research titled "Knowledge of Common Symptoms, Risk Perception and Treatment Behaviours of Sexually Transmitted Infections among Students of The Polytechnic, Ibadan, Oyo State". **The lead researcher is a Postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan.**

The information gotten from this research will be used in developing STI prevention programs. Please note that there are no right or wrong answers to the questions asked or the statements made; instead, what is desired of you is your truthful and honest responses. Please note also that the completion of this questionnaire is entirely voluntary and your participation will cost you nothing.

The questionnaire attached has six sections (A to F); in each of these sections you are requested to please give honest responses to these questions as much as possible to ensure the validity of the findings from this research. Your identity, responses and opinions will be kept confidential and used for the purpose of this research only. To assure you of the confidentiality of this research, all possible identifiers have been removed from the questionnaire.

Now that the study has been well explained to me and I fully understand the extent of the research process and my role in the research, **I HEREBY TAKE A VOLUNTARY DECISION TO PARTICIPATE IN THIS STUDY.**

KINDLY TICK (√) **1. YES [ ]** or **2. NO [ ]**

Thank you.

Name of Lead Researcher: Oharume, Irikefe Mark

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SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Instruction: *Please, mark* **[**√**]** *in the boxes provided (as appropriate)*

1. Gender 1. Male **[ ]** 2. Female **[ ]**

2. Actual age in years (Age as at last birthday)…….years

3. Faculty 1. Engineering **[ ]** 2. Science **[ ]** 3. Environmental Studies **[ ]** 4. Financial & Management Studies **[ ]** 5. Business & Communication Studies**[ ]**

4. Department.....

5. Level of study 1.ND.1 **[ ]** 2.ND.2 **[ ]** 3.HND.1 **[ ]** 4. HND.2 **[ ]**

6. Residence 1. Campus **[ ]** 2.Off-campus **[ ]**

7. If you are single and live off campus, have you ever lived with a boyfriend/girlfriend of opposite sex?

1.Yes **[ ]** 2.No **[ ]**

8. Religion

1.Christian **[ ]** 2. Islam **[ ]** 3. African Traditional **[ ]** 4. Others(specify)……

9. Marital status 1. Single **[ ]** 2. Married **[ ]** 3. Separated/Divorced **[ ]**

10. Ethnicity

1. Yoruba **[ ]** 2. Ibo **[ ]** 3. Hausa **[ ]** 4. Others (specify)……..

SECTION B: KNOWLEDGE OF STIs

11. List any **FOUR (4)** types of STIs you are familiar with

1.....

2.....

3.....

4.....

12. List any two common symptoms associated with STIs that you know

1.....

2.....

13a. Are there complication associated with STIs? 1. Yes [ ] 2. No [ ]

13b. If 'Yes" to Q.13a, please tick *(√)* the complications due to STIs that you know. ***Tick as many options as applicable.***

S/N	COMPLICATION	YES	NO
i	Irregular menstrual cycle		
ii	Pelvic inflammatory disease		
iii	Vomiting		
iv	Tubal blockage		
v	Urethral stricture		
vi	Diarrhoea		
vii	Cancer of the reproductive organs and liver		
viii	Weight loss		
ix	Eye infection /blindness in babies of infected mothers		
x	Others (specify) ……		

14. Are there STIs that cannot be cured? 1. Yes **[ ]** 2. No **[ ]** 3. Don't know **[ ]**

14b. If Yes to Q14, mention three STI(s) that cannot be cured.

i……...

ii.....

iii.....

SECTION C: RISK PERCEPTION OF STIs

Instruction: *For the following questions Kindly tick [√] the best option as applied to each question (one option for each question)*

15. How afraid are you of contracting an STI?

1.Not afraid at all **[ ]** 2. Not afraid **[ ]** 3. Afraid **[ ]**

4. Afraid a little **[ ]** 5. Afraid a lot **[ ]**

16. Do you think that your current sexual behaviour puts you at risk of infection with STIs?

1. Yes **[ ]** 2. No **[ ]** 3. Don't know **[ ]**

In the table below are statements that relate to your perception of STIs, please indicate the degree to which you agree or disagree with the statements by ticking[√]SA for strongly agree, A for Agree, UD for Undecided, D for Disagree and SD for Strongly disagree.

S/N	STATEMENTS	SA	A	UD	D	SD
17	STIs are very dangerous killer infections					
18	A person with an STI can look healthy					
19	If someone with STI looks and feels healthy he cannot spread the infection					
20	STIs affect only women					
21	Only promiscuous people contract STIs					
22	STIs are common among uneducated people in rural areas only					
23	I cannot contract STIs because I am a child of God					
24	Having more than one sexual partner can increase the risk of contracting STIs					

SECTION D: PRACTICES AND BEHAVIOURS

25. Have you had sex in the past 12 months? 1. Yes **[ ]** 2.No **[ ]**

26. Do you think your spouse or boy/girl friend has other sexual partners?

1.Yes **[ ]** 2. No**[ ]** 3.Don't know **[ ]**

27. How often do you or your partner use condom during sex?

1. Never **[ ]** 2. Not often **[ ]** 3. Usually but not always **[ ]** 4. Always **[ ]**

28. How many people have you had sex with in the last 6 months? …….

29. Have you or your partner ever used alcohol before having sex? 1. Yes **[ ]** 2.No **[ ]**

30. Did you or your partner use a condom the last time you had sex? 1. Yes **[ ]** 2.No **[ ]**

31. Have you or your partner ever smoked before having sex? 1. Yes **[ ]** 2.No **[ ]**

32. Mention **TWO (2)** things that you are currently doing to avoid getting STIs?

1……..

2……..

33. Since you got admitted into this school, has there been any awareness program on STI in the school?

1. Yes **[ ]** 2.No **[ ]**

SECTION E: PREVALENCE OF STIs/STI SYMPTOMS

34. In the past 12 months have you experienced any of the following?

S/N		YES	NO	CANT REMEMBER
a	A bad-smelling, abnormal discharge from the vagina or penis			
b	Genital sore/ulcer or blister			
c	Pain during urination			
d	Others (specify)……...			

SECTION F: TREATMENT BEHAVIOURS TOWARDS STIs

Instruction: *Kindly tick [√] one option only for questions 43 and 44*

35. If you found out that you had an STI/STI symptom which of the following actions will you take?

1. Nothing **[ ]** 2. Self medication **[ ]** 3. Visit a health facility for treatment **[ ]**

4. Visit a traditional healer for treatment **[ ]** 5. Visit a PMV/Chemist (medicine stall) for treatment **[ ]**

36. How soon would you take action if you found out that you had an STI/STI symptom?

1. Within one week **[ ]** 2. After one week **[ ]** 3. When the symptoms fail to disappear **[ ]**

Instruction: Answer question 37 if you chose options 2 and 3 for questions 36

37. What will be the reasons why you would delay treatment? ***(Instruction: Kindly tick [√] as many options as applicable)***

S/N	REASON(s)	Tick[√]
a	Health professionals in STI treatment facilities are not friendly	
b	Lack of money to afford the cost of treatment	
c	Ashamed of meeting people who may know me at the health facility	
d	No knowing the right place to go for treatment	
e	Not noticing the symptom(s) early	
f	Not knowing what the symptom(s) is	
g	If I think it is not very serious	
h	Want to be sure before going for treatment	
i	Others (specify)……..	

38. If you found out that you had an STI/STI symptom mention those you would talk to about your illness? ***(Instruction: Kindly tick [√] as many options as applicable)***

S/N		Tick [√]
a	Nobody	
b	Parents or guardian	
c	Siblings and close relatives	
d	Health worker or doctor	
e	Friends	
f	Spouse/boyfriend or girlfriend	
g	Others (specify)	

I THANK YOU MOST SINCERELY FOR ANSWERING THESE QUESTIONS