MAGNITUDE AND FACTORS ASSOCIATED WITH RISKY SEXUAL BEHAVIOURS AMONG UNDERGRADUATE STUDENTS IN SELECTED UNIVERSITIES IN KIGEZI SUB REGION

BAHATI AMON

2018/MPH/1779/W

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF PUBLIC HEALTH OF KABALE UNIVERSITY

MAY 2022

DECLARATION

I hereby affirm that this dissertation is my original work and has not been presented in any other University or Institution for academic credit. All the sites used are quoted in this study and have been indicated and acknowledged by means of references.

Signature........................... Date:.........23|05|2022.....................

Bahati Amon

2018/MPH/1779/W

APPROVAL

This dissertation has been submitted with our approval as supervisors.
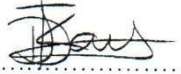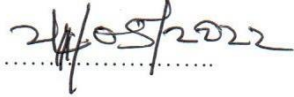
First Supervisor

Signature... Date:...24/05/2022

Nwankwo Mercy Chinenye (PHD)

Community Health Department

Kabale University

Second supervisor,

Signature... Date:...24/05/2022

Dr Denise Kavuma

Lecturer

Kabale University

DEDICATION

This piece of work is dedicated to my family and friends and to my sons Ethan, Jensen and Jahel who will sooner or later be expected to practice positive sexual behaviours.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

UNICEF:	United Nations International Children's Emergency Fund
STI:	Sexually Transmitted Infection
PEP	Post Exposure Prophylaxis
PrEP:	Pre- exposure Prophylaxis
SRHR:	Sexual Reproductive Health and Rights
SRH:	Sexual Reproductive Health
SRR:	Sexual Reproductive Rights
RHS:	Reproductive Health Services
AHS:	Adolescent Health Services
HTS:	HIV testing services
HIV:	Human Immunodeficiency Virus
AIDS	Acquired Immunodeficiency Syndrome
IEC:	Information education communication
HBM:	Health Belief Model
UNAIDS:	Joint United Nations Programme on HIV/AIDS
MoH	Ministry of Health (Uganda)
ASRH	Adolescent Sexual and Reproductive Health
PLWAs	People Living With AIDS
NGO	Non-governmental organization
UNDP	United Nations Development Programme
VCT	Voluntary counseling and testing
RSB	Risky Sexual Behavior
BBUC	Bishop Barham University College
MIU	Metropolitan International University
KAB	Kabale University
DEFF	Design Effect
MOE and S	Ministry of Education and Sports

OPERATIONAL DEFINITIONS

Youth: Young person between 18- 30 years' old (constitution of republic of Uganda, 1997)

Student: Any person admitted, registered for undergraduate course of study at any learning institution or universities, A, B and C

Staff: Any person employed and works at any of the universities

Sexual reproductive health and rights (SRHR): Concept of human rights applied to sexual health and sexuality

Needs: these are unmet demands for SRHR

Sex: refers to sexual intercourse in the context of this study.

Utilisation: It means up taking SRHR services that are good and satisfy students' need

Knowledge on SRHR: If the respondent mentions at least five SRHR on their own, they were considered to have good knowledge; otherwise, they were considered to have poor knowledge

Sexual reproductive health and rights service utilization: those respondents who utilized at least one of the following main SRHR services in the past four months (pregnancy test, Antenatal care (ANC), Voluntary counselling and Testing (VCT), Family planning (FP), Sexually transmitted Infection (STI) diagnosis and treatment, abortion and post abortion care, or got information and counseling on sexuality)

SRHR problems: These included reproductive health (RH) problems such as unwanted pregnancy, abortion, sexual violence, teenage pregnancy, and STIs which respondents could face and the consideration was that at least one of the RH being mentioned.()

Risky Sexual Behaviours: Having more than one sexual partner, inconsistence condom use, and not being faithful to sexual partner(s)

An undergraduate: A student at a university or college who is studying for his or her first degree.

<h1 style="text-align:center">DEFINITION OF KEY TERMS</h1>

Sex

Sex refers to the biological characteristics that define human as a male or female. Most Ugandans often use sex to mean "sexual activity" but for technical purposes in the context of sexuality and sexual health discussion, the definition used is preferred (WHO, 2010).

Sexuality

It is the central aspect of being human throughout life and encompasses sex, gender identifies and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, belief attitude, values, behaviours, roles and relationships. However, not all the dimensions are always experienced or expressed sexuality is influenced by interactions of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious and spiritual factors (WHO, 2010).

Sexual Health

Sexual health is the state of physical, mental and social wellbeing in relation to sexuality. It is not merely the absence of disease, or infirmity. Sexual health requires a positive and respectful approach and sexuality and sexual relationships as well as possibility of having pleasurable and safe sexual experiences, devoid of coercion, discrimination and violence. For sexual health to be attained, the sexual rights of all persons must be respected, protected and fulfilled (WHO, 2010).

Sexual rights

The application of human rights and sexual health constitutes sexual rights. Sexual rights protect people's rights to fulfil and express their sexuality and enjoy sexual health, with due regard for the rights of others and within a framework of protection against discrimination Sexual rights among others include, the right to decide the number and spacing of one's children, the rights to marry and to found a family and enter into marriage with free and full consent of the intending spouses and to equally get involved in the management of family affairs and at the dissolution of marriage (WHO, 2010).

Reproductive health

This is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity in all matters relating to reproductive systems, its functions and processes. Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capacities to reproduce, and the freedom and decide if, when and how often to do so (WHO, 2010).

Reproductive rights

This is where a woman and a man have rights to be informed and have access and safe, effective, affordable and acceptable methods of family planning of their choice as well as other methods of their choice for regulation of fertility which are not against the law, and right of access to appropriate health care services that will enable woman to go safely through pregnancy and child birth and provide the couple with the best choice of having a healthy infant (WHO, 2010).

Reproductive health care

This refers to methods, techniques and services that contribute to reproductive health and wellbeing through preventing and solving reproductive health and wellbeing through preventing and solving reproductive health problems (WHO, 2010).

Sexual reproductive health and rights

SRHR refers to a range of interrelated freedoms and entitlements such as the freedom to make informed decisions regarding one's body without violence or discrimination and the entitlement to the progressive realization of full access to health information, facilities, services and supplies (Tanyg, 2019). Guttmacher-Lancet commission defines it as "an associated essential package of health services and outline actions needed beyond the health sector to change social norms, laws and policies to uphold human rights (Watts, 2018).

Universal Coverage

Ensuring that all people can use the promotion, preventive, curative, rehabilitative and palliative health services they need and that are of sufficient quality, while also ensuring that, the use of these services does not expose the uses to financial hardships".

Risky sexual behaviours

Any sexual activity that increases the risk of contracting HIV and other STI or becoming pregnant It includes early sexual debut, unprotected sexual intercourse, inconsistence use of condoms, involvement with high risk partner and sex with a partner who has other partners (Taylor, 2000; Keto, 2020).

Adolescent

This is a person between 10 and 19 years of age (WHO, 2014).

Youth

This is a person between 15-24 years of age (WHO, 2019).

Sexual Harassment is defined as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's

sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work" (Krug, Mercy et al., 2002). It may take the form of non-consensual (forced or alcohol or drug-facilitated) attempted or completed sexual contact which may mayinvolve intentional touching, either directly or through the clothing, of the genitalia, anus, groin, breast, inner thigh, or buttocks of any person (rape, gang rape, and defilement), non-consensual acts of a sexual nature not involving contact (voyeurism/ unwanted exposure to pornography, verbal sexual harassment) , and acts of sexual trafficking committed against someone who is unable to consent or refuse (WHO 2016, CDC 2017).

Violence is defined as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, mal-development or deprivation" (Krug, Mercy et al., 2002).

Young person

This is any person between ages of 10-24 years old (WHO, 2019).

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ABSTRACT

Although the Uganda government policy has tried to put in place measures that would minimise to promote sexual and reproductive health, there have been reports of rampant risky sexual behaviour especially among the youths most especially among university students. However, prior to the current study, the problem had not been explored with regard to the universities in the Kigezi sub-region, all of which are new. The current study assessed the prevalence andfactors associated with risky sexual behaviors among undergraduate students in selected universities in Kigezi sub-region as well the unmet needs with regard to sexual health services An institution based cross sectional study was conducted among 1056 study participants from target population of 5303 using a self-administered pre-tested questionnaire, key informant interview and direct observations using a pre-deigned checklist, to collect the data. The results showed the prevalence of sexual behaviour were as follows: Having multiple partners 494 (47%), being unfaithful to their sexual partners 348(33%) and inconsistence condom use 214(20%) It was also revealed that the factors that influenced the students to be involved in risky sexual behaviour included cold climate reported by 806 (76.3%) of respondents; limited condom provision and irregular replacement pattern in the Universities by 671 (63.5%, 605567936 - .664508207); and limited family planning programs and activities in the Universities with about 673 (63.7%, CI:0.61 - 0.67) of respondents. From the multinomial regression analysis, the study revealed the following variables to be statistically significant in relation to the prevalence of risk sexual behaviour: the individual or personal linked risky behaviors (p- value = 0.000 < 0.05); the contextual and environment related risk factors (p- value = 0.03 < 0.05). The unmet need was mainly in terms of sexual reproductive health services (p- value = 0.000 < 0.05 and p- value = 0.000 < 0.05).In conclusion, the study revealed that there is high prevalence of risky sexual behaviour in the study population which is influenced by cold climate, limited condom provision and irregular replacement pattern and limited family planning programs in the Universities with a significant unmet need for sexual health services in form of family planning services, sexual health activities sexual health counseling. The study therefore, recommends designing and implementing sexual risk reduction programs in university-based health care services in Uganda.

CHAPTER ONE
INTRODUCTION

1.1 Background

Risky sexual behaviour has been defined as any sexual activity that increases the risk of contracting HIV and other STI or becoming pregnant. It includes early sexual debut, unprotected sexual intercourse, inconsistence use of condoms, involvement with high-risk partners and sex with a partner who has other partners (Taylor, 2000, Keto, 2020). The issue of risky sexual behaviour becomes very important when the current global status is considered in terms of the structure of the world population. The world now has more young people than ever before and of the 7.2 billion people worldwide by 2018, over 3 billion were younger than 25 years, making up 42% of the world population while around 1.2 billion of these young people were adolescents aged between 10 and 19 years (WHO, 2018). Uganda is one of the countries in the world with the youngest population, growing at annual rate of 3.2%. Of this young population, 50% is below 15 years while 75% is below 25 years of age.

Although the Uganda government policy has tried to put in place measures to promote sexual and reproductive health, there have been reports of rampant risky sexual behaviour especially among the youths most especially among university students. Teenage pregnancies stand at 25%, 10% marry before age 15 while 40% marries before age 18 years. Due to low of use of condoms, HIV incidence among adolescents remains high, standing at 11.6% (Netherlands Embassy, 2018)(MOH Uganda, 2020). The Uganda Demographic Health Survey conducted in 2016, estimated the pregnancy-related mortality ratio to be at 336 deaths per 100,000 live births and adolescents 15–19 years contributing 17% of all pregnancy related mortality rate in Uganda.

These statistics suggest gaps in information and services on sexual and reproductive health and rights. Adolescents aged 15-19 contribute 17.6% deaths due to pregnancy related conditions. (MOH-Uganda, 2019) Uganda's teenage pregnancy rate is at 26% an increase from 24.5% in 2011, and far from the 14% target of the Health Sector Development Plan by 2020. Teenage pregnancy is higher among uneducated girls (with 35% of girls without education having already produced a baby, compared to 17% of girls with secondary education (UDHS, 2016).

In Uganda, adolescents remain vulnerable to risks associated with SHRH. Accordingly, about 1 – 4 have a number of sexual partners, 34.3% suffered from abuse (especially girls), while

73.3% were forced into sexual intercourse with strangers and family relatives without their consent (Renzaho, Kamara, Georgeou and Kamanga, 2017).

However, this is not only a Ugandan problem; research findings indicate that other countries and regions are also affected and a number of factors have been put forward as influencing this trend. A number of reports indicate a link between short-falls in provision of reproductive health services and the prevalence of risky sexual behaviour as has been reported in a number of studies.

A study conducted among 31 European countries, including European Union, Iceland, Norway, and Switzerland, reported that the provision of healthcare needs to adolescents in the area of SHRH is below the optimal. The authors showed that 10 out of the 31 countries investigated lacked specialized centers where young adults could access information on reproductive health without their parents knowing, and 23 countries could not meet the standards of providing policy-based pregnancy care (Michaud, Visser, and Vervoort, 2020).

Furthermore, a study conducted among 27 universities and colleges in European countries revealed poor coverage of SHRH in their educational programmes which were found to lack comprehensive coverage of SHRH, and which were found to be unequally shared among professionals and universities (Areskoug-Josefsson, Schindele, Deogan, and Lindroth, 2019).

Related studies in Sub Saharan Africa are few that assessed intervention towards SHRHS among students aged 18–24 and with regard to students' attitudes on SRH behaviour especially condom use and issues of abstinence (Geugten, Meijel, Uyl, and Vries, 2015). Similarly, a study on adolescents and youth-friendly health service delivery in East and Southern Africa revealed that although 78% of the health facilities had educational materials on SRHR, 43% of the young clients had received information on SRHR. Additionally, 79% of the health facilities indicated having policies and guidelines on equity and non-discrimination but without clear guidance on the marginalized, the vulnerable and young adolescents (United Nations Population Fund East and Southern Africa and International Planned Parenthood Federation, 2017).

According to Shiferaw et al. (2014), cross-sectional study at the University of Gondar among students engaging in HIV risk behaviours, including unprotected sex, alcohol and drug consumption, and multiple sexual partners, the participants did not perceive these activities as

risky. Another study on SHRH of adolescents in schools with people with disabilities in Ghana, they had poor knowledge of contraceptives, and access (Obasi, et al., 2019). The authors note that much as disabled persons have the same sexual needs as the normal people, there are barriers to contraceptive methods, awareness and availability of SHRHS. In this regard, since people with special needs are considered by society as asexual, they are highly abused, and vulnerable to sexual dysfunction that often originates from their psychological conditions (Mohamed, Ibrahim, Ramdzan, Ashiqn, Rosnah and Ujang, 2019). Studies conducted in Ethiopia among female students showed that SRHR utilization stands at 54.6% and 50.8% of the students had faced SRHR problems (Tewachew,2021). In Ethiopia among high school and preparatory students, they reported a 13.7% prevalence of risky sexual behaviour (Mengesha, 2020).

The challenges of providing adequate SRHRS may be critical due to staffing gaps, irrelevant policy guidelines, lack of access to relevant information, and education at health facilities, and the stock outs of medical consumables and drugs in health facilities (UNFPA, 2015). The young adults have become vulnerable towards pregnancy and sexually transmitted diseases for lack of clear information about reproductive health, indulging in unprotected sex, and moreover, with multiple partners (Harmon, Burruss and Finnigan, 2020). Although sexual and reproductive health services is provided at the primary care level in many countries across the globe, however, it is still scarce in some countries due to financial inequalities, social norms, and gender inequalities (WHO, 2016).

The investigation of health needs of youths in Malawi, using a group discussion, the authors found that youths need comprehensive information on HIV, and skills to interact with healthcare service providers, and skills to evaluate reproductive health information from other sources (Uwamahoro, Ngwira, Vinther-Jensen, Kirsten, and Rowlands,2020). Also, a study in Nigeria revealed that personal, social and system factors are key barriers to accessing reproductive health services among adolescent. Social factors had the greatest influence on the free use of reproductive health services. (Nmadu, Mohamed and Usman, 2020). Although these studies had a community focus on youths they lacked a context of university students' SRHR.

A study in Kenya showed that integrating SRHR in the national policy plan suffered from low stakeholders, low youth involvement, limited leadership, inadequate resources, and

cultural and religious barriers. Consequently, adolescents in Kenya lack full information on SRHR (Ministry of Health Kenya, 2015). In the case of Uganda, study conducted in central Uganda, among university students revealed that male students 29.0%, and among the female students 33.1% reported having had some experience of sexual coercion (Annette, 2011).

Furthermore, studies have shown that risky sexual behaviour was positively associated with staying in urban and poor utilisation of VCT was common in rural areas (Erena, 2019)

Young people in Uganda engaging in multiple sexual partnerships are often driven by the desire for increased sexual pleasure, cultural norms, partner infidelity, and economic necessity. Multiple sexual partnerships as a high-risk sexual behaviour does not take into account the sexually transmitted disease (STD) status leading to inconsistent condom use among multiple partners (Tonny,2020)and unprotected sexual intercourse thus increasing transmission of STIs (Sathiyasusuman, 2015; Tonny,2020).

Moreover, a study conducted about the provision of SRH services to adolescents in boarding secondary schools in Soroti district in Uganda concluded that SRH services are lacking. Other findings included lack of confidentiality, delayed access to SRH, and stigmatization while seeking SRH services (Morukileng, 2019).

A study in Buikwe district in Eastern Uganda, showed that 26% of the least educated women in Uganda are less likely to have their births supervised by skilled health professionals compared to the educated women who were three times most likely to have skilled health professionals around them (Moreau, 2017).

. Due to inadequate access to sexual and reproductive health services, one in four girls aged 15 – 19 years in Uganda have given birth or are pregnant due to lack of access to contraceptive information and services (Atuyambe, Kibira, Bukenya, Muhumuza, and Apolot, 2015). Also, studies have reported that about 80% of maternal deaths are due to severe bleeding, infections, and high blood pressure during pregnancy and unsafe abortions (Mulumba, 2016)

A related study in Wakiso district in Central Uganda among young people revealed that adolescents SRH needs have not been addressed. These included sexuality problems like unwanted pregnancies, STIs, defilement, rape and substance abuse. And the need of identification of resource support centers that provide training, information, education and

communication materials to adolescents (Atuyambe, Kibira, Bukenya, Muhumuza and Apolot, 2015).

An exploratory study on the current status of HIV-SRH integration for young people and the barriers in public health facilities in Mbarara, Western Uganda, showed that, despite the integration of HIV-SRH at all health facilities, the services for young people are poorly blended. Consequently, adolescents' needs are not adequately addressed (Akatukwasa, Bajunirwe, Nuwamanya, Kansime, Aheebwe, and Tamwesigire, 2019). Majority of adolescents usually consult their mothers and aunts for Sexual and Reproductive Health (SRH) information which presents a gap in accuracy of information that is provided by the immediate relatives (Ntulume, 2018).

The lack of curriculum to guide the teachers and lack of training skills on sexuality issues leaves teachers unprepared for teaching sexuality education. This has left adolescents with nobody to inform them about sexuality matters and they rely on their peers for information. As a result, adolescents have wrong information and myths (Ahlberg, Jylkäs, and Krantz, 2001, and Anne Wairimu Kamau, 2006). Adolescence is the healthiest period of the life cycle and also a time of increased risk taking, turmoil, and susceptibility to behavioural problems of puberty and new concerns about reproductive health (Steinberg, 2001; King, 2004). Additionally, lack of privacy and confidentiality in many health centres may lead to few adolescents seeking these services (Anne, 2006).

Students engage in HIV risk behaviours, including unprotected sex, alcohol and drug consumption, and multiple sexual partners, and worse still, they do not perceive these activities as risky (Shiferaw et al, 2014). Despite the high demand for SRHR in Uganda, which stands at 66.3% (Oonyu, 2019), many adolescents in Uganda lack sexual reproductive rights to make their own choices when they become sexually active (Rijsdijk, Lie, Bos, Leerlooijer, and Gerjo, 2012; Kasozi, Kasozi, Kiyingi, and Musoke, 2019).

Furthermore, knowledge of reproductive health in Uganda remains low. Use of condoms stands at 43% among boys and 55% among girls (Nalukwago, 2019). A recent study conducted among the very young adolescents in South Western Uganda revealed that 7.6% had ever had sex yet 90% of those adolescents were not using any form of protection from HIV and pregnancy (Kemigisha, 2018). It was also reported that students at the university

generally had high rates of unmet healthcare needs and unmet sexual health counselling needs (Markus, 2016).

Kisoro and Kabale districts being at international borders of Democratic Republic of Congo and Rwanda has been cited as putting young people at sexual risk in that there are many migrant women who engage in prostitution as a means of earning money from the transport workers who spend the night near the border (Annette, 2011). S such, border districts are characterized by widespread prostitution, alcohol consumption, drug abuse, and child labour which behaviours negatively affect young people and in many ways predispose them to HIV infection (Japheth, 2019).

Slums in Kisoro and Kabale consist of a broad range of poor environmental, social, and economic conditions which likely exacerbate the mental health conditions of vulnerable youth who experience a multitude of other risk factors and adversity. According to Rachel (2018) besides studies having revealed that schools themselves effectively foster a culture of silence around the topic of sexual harassment in Uganda (Mieszczanski, · 2018), cases of insults and intimidation, with real or threatened retaliation, victim-blaming with the absence of organizational regulatory mechanisms leading to suppressed reporting (Constance, 2021). Similarly studies have shown that reporting ever having had sexual intercourse were higher among children and young adults living alone. Most university undergraduates, are exploiting a period of freedom with no parent to monitor them and are staying alone which predisposes them to risky sexual behaviors (Renzaho,2017).

Other factors reported to influence risky sexual behaviour include engaging in multiple sexual partnerships which was found to be positively associated with being female aged 18-24 years old (Tonny, 2020). The well-being of girls and women is impacted by direct and indirect consequences of crisis and emergencies (Tanya 2019).

Drawing from the above background, the study examined; prevalence, and factors associated with risky sexual behaviours plus unmet need for sexual health services for university undergraduate students using the Health Belief Model (HBM) which was advanced by social scientists in the 1950s, as the underpinning theory. The HBM states that when a person believes that a certain illness is likely to bear disastrous consequences and that the individual believes in the available strategies to overcome the illness, they are likely to take actions toward preventing such disastrous consequences (Glanz, Rimer and Viswanath, 2008). The

model was developed to explain why young people fail to take early preventive strategies or disease tests that allow early detection and therefore treatment (Glanz, Rimer and Viswanath, 2008; Mckellar and Sillence, 2020; Patterson, Bates, and Grijalva, 2018).

The model built on: 1) the desire to avoid illness, or conversely get well if already ill; and, 2) the belief that a specific health action will prevent, or cure, illness. The model rests on six constructs that explain the reasons for young people to seek strategies to prevent the extent of an illness. Perceived susceptibility that is the belief about the chances of experiencing a risk or getting a condition or disease. Perceived severity that is belief about how serious a condition and its consequence are perceived benefit that is belief in efficacy of the advised action to reduce risk or seriousness of impact. Perceived barriers that is belief about the tangible and psychological costs of the advised action. Cues to action that is Strategies to activate "readiness". Self-efficacy that is confidence in one's ability to take action

The HBM highlights individual and contextual factors that perpetuate adolescents' inability to take advantage of available sexual health counseling services to protect themselves from sexual health risks facing them. Further, individual perceptions and expectations of student determine the kind of sexual health services that are provided to students. It further asserts that a combination of contextual factors exposes young adults to sexual health risks.

Given the context of the current study, the researcher sought to understand the failure of university students to practice good sexual behaviors that is helpful for their sexual health and right decision making about their sexuality. Since students who perceive themselves to be susceptible to sexual behavioral risks and are ignorant of Sexual health counseling tend to seek out for information from wrong sources that increase their susceptibility and severity of sexual behavioral risks, it was hypothesized that if university students are made aware of their Sexual health counselling needs, and the barriers to understanding such needs are eliminated, they are likely to take responsible actions about their health and the decisions they make thereof. As such, the HBM enables one to understand the factors that prevent university students from taking up their Sexual health counseling services and information with an anticipation that they are likely to undergo behavioural change when their sexual health counselling services are improved.

1.2 Statement of the problem

Uganda's policy commitment is to provide comprehensive condom programming with the purpose of ensuring that all sexually active young persons at risk of STIs/HIV and unintended pregnancies are motivated to choose and use condoms, have access to quality condoms and the ability to use them correctly and consistently (MOH Uganda, 2020).However, despite the positive programmes in place, there are reports that indicate that Ugandan university students are practicing risky sexual behaviours, (Simon,et al (2022) and Mambo, (2022).

Risky sexual behaviours are characterised by inconsistence condom use, multiple sexual partners and non-faithfulness among partner(s) and h ben reported to be highly prevalent among adults aged 18-24 years (Sun,2012). These risky sexual behaviours increase susceptibility of university students to unwanted pregnancies, increased spread of STIs including HIV/AIDS, mental disorders, poor reproductive health, abortions and their complications, sexual abuse, and long-term emotional distress. The demand for SRHR in Uganda, stood at 66.3% in 2019 (Oonyu, 2019), with I:4 adolescents having multiple sexual partner and 60% university students being sexually active, In Uganda, prevalence of Risky sexual behaviour among university students was reported to be 17 % in 2020, 26% in 2021 (Mengesha, 2020, Tekletsadik at-et,2021) but these studies did not cover universities in the Kigezi sub region where the risk factors might be different.

Furthermore, prior to this study, it had not been established as what could be the unmet need for sexual health services in the study area especially when it comes to university setting. Coverage of sexual health awareness among students had not been assessed (Atuyambe et al, 2015) and hence the need for this kind of study.

When Risky Sexual behaviour reduction is not addressed, students may continue to be vulnerable to early sexual debut, unprotected sexual intercourse, being with high-risk partners, and sex with multiple partners and illegal abortions.

This study therefore, examined the prevalence, unmet need and factors associated with risky sexual behaviours among undergraduate university students in Kigezi Sub Region to provide information that would attract corresponding reform.

1.3. Objectives

1.3.1 General objective

This study determined the magnitude and factors associated with risky sexual behaviour among undergraduate students in selected in Public and Private Universities in Kigezi Sub Region as well as the unmet need with regard to sexual health services

1.3.2. Specific Objectives

1. To determine the prevalence of risky sexual behaviours among undergraduate students of universities in Kigezi sub region

2. To identify individual-related factors associated with risky sexual behaviours among undergraduate students of universities in Kigezi sub region.

3. To determine the contextual factors associated with risky sexual behaviours among undergraduate students of universities in Kigezi sub region.

4. To assess the unmet need for sexual health services among undergraduate Students of Universities in Kigezi sub region.

1.4. Research Questions

The study was guided by the following research questions.

1. What is the prevalence of risky sexual behaviours among undergraduate students of universities in Kigezi sub region?

2. What are the individual-related factors associated with risky sexual behaviors among undergraduate students of universities in Kigezi sub region?

3. What are contextual factors associated with risky sexual behaviours among undergraduate Students of Universities in Kigezi sub region?

4. What are the unmet needs for sexual health services among undergraduate students of universities in Kigezi sub region?

1.5. Justification

Uganda's population grows at an annual growth rate of 3.2%. This growth rate makes Uganda one of the countries in the world with the youngest population (Netherlands Embassy, 2018) MOH, Uganda 2018). Such a young population needs proper sexual and reproductive health and rights information and services.. The percentage of young girls who get married before turning 18 years shows Uganda's dire need for SRHR information among this vulnerable category of the population, in which university students fall (Kasozi, Kiyingi and Musoke, 2019). A recent report based on female students from Makerere University

indicates that the need for SRHR among university students stood at 66.3% (Oonyu, 2019). Therefore, the findings from this study could be used to inform programmes and interventions seeking to serve young people basing on sexual risky behaviors evidence from universities in Kigezi.

The study uniqueness is primarily focused on assessing unmet need for sexual health counselling services and best approaches of improving sexual health counselling services to undergraduate university students in universities in Kigezi sub region. This study's findings may have significant implications for the government of Uganda and agencies like ministry of health, policy makers, project implementers, service providers, and researchers preparing to accelerate university Health programs. The university may also use these findings to improve sexual health counseling Services among students, and or staffs.

Like any new program, sustainability depends on evidence-based studies and involvement of stakeholders and beneficiaries. Therefore, the report from this study might be important when planning to establish or and strengthen sexual health services in Kigezi Region Universities and other universities in Uganda

In Uganda, to the best of my knowledge, there are limited studies, conducted on sexual health services among university students in Kigezi sub region. Therefore, this study assesses the prevalence, unmet need for sexual health counseling service and factors associated with risky sexual behaviors among undergraduate university students in Kigezi sub region, Uganda.

1.6. Study Significance

The study would inform programs and interventions on gaps on sexual risky behaviors evidence from the study location. Findings from the unmet need for sexual health counseling services might be used to design best approaches for improving sexual health counseling services. It also adds new knowledge to existing literature, and has provided evidence-based data for interventions.

1.7. The Scope of the Study

1.7.1 Geographic Scope

This study was conducted among the undergraduate students of universities A, B and C in Kisoro and Kabale districts in south western Uganda. The districts border with Kanungu and Rukungiri districts in the north and north west, Democratic Republic of Congo (DRC) in the west, Rwanda in the south and Rubanda in the west   and Rukiga district in the East

1.7.2 Content scope

The study was carried out among undergraduate students of universities in Kigezi sub region to obtain information about prevalence of risky sexual behavior focusing on individual-related and contextual factors influencing risky sexual behaviour among undergraduate students of selected public and private universities in Kigezi Sub Region.

1.7.3 Time Scope

The study took two months for data collection.

1.8. The Conceptual Framework

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Independent Variables   **Dependent Variable**
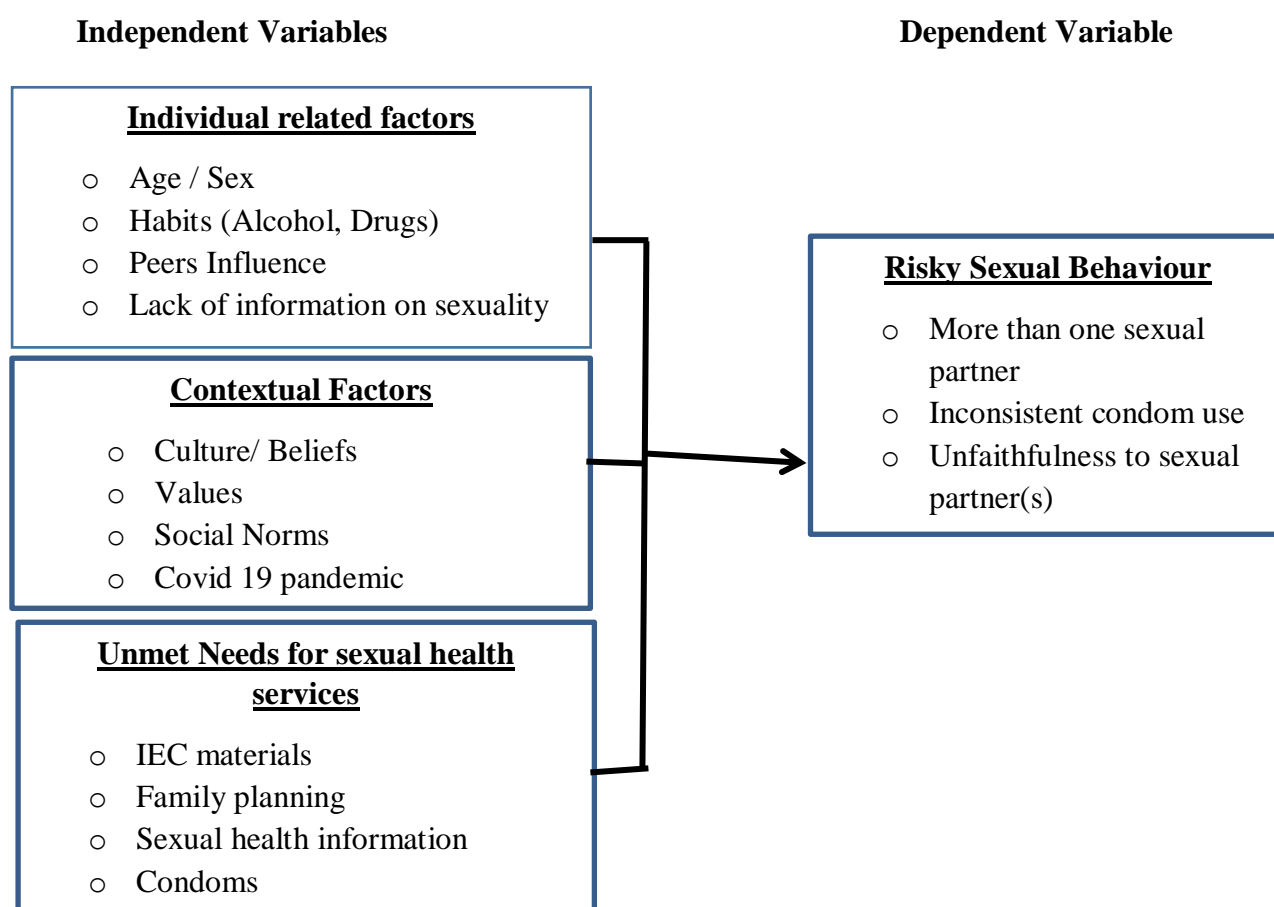
Figure 1:Study Conceptual framework

Source; principal investigator generated

The researcher observed that a number of factors influence the sexual behaviors of undergraduate university students these factors can be categorized as individual-related factors, contextual factors and unmet need for sexual health services. Students who come from very poor, very religious and culturally-centered families are likely to shy away from practicing positive risky sexual behaviors than their counterparts from rich, less religious and less culturally-centered families. (Idele., Amaya.et al. 2014, UNAIDS 2015). Students living

with HIV they may not give the necessary priority to HIV related issues in their lives increasing the transmission of infection (UNICEF 2013)

Migrants at boarder districts predispose community members to risky sexual behaviors than students in non-border districts.

Similarly, students that have been exposed to information (right or wrong) through mass media and education, and have access to health facilities have high need for Sexual health counseling to rightly position their decision making and information seeking on their sexuality and sexual health. Levels of knowledge of HIV among adolescents and young adults are appallingly low and girls tend to have worse knowledge levels than boys of the same age (Idele 2014).

 The current consent policies are a key barrier to uptake of HTS by students (UNAIDS 2016). The lack of university dress code policy make students dress short, transparent dresses which promotes lust. The extreme cold weather condition in Kigezi Sub Region influence to seek for sleep mates and most of them prefer opposite sex which encourage risky sexual behaviors than other students in worm weather condition particularly those not from kigezi region . The researcher hypothises that students whose Sexual health services are rightly addressed are likely to seek right information and make right decision on their sexual health and sexuality.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of studies that are related to the current study. The literature is presented in sections namely, a review of the theoretical model underpinning the study, individual factors (including age, sex, marital status, prior history of rape) and contextual factors like tribe, religion and culture. There is also a review of policies that are related to risky sexual behaviors.

2.1.0. Review of the theoretical framework

2.1.1 The Health Belief Model (HBM)

The Health Belief Model (HBM) proposes that young people are most likely to take preventative action if they perceive the threat of a health risk to be serious, if they feel they are personally susceptible and at risk (Hanafi, *et al* 2021). It provides a useful framework for investigating health- seeking behaviours and identifying key health beliefs that influence utilisation of health services. It has been widely used and has met with moderate success in predicting a range of health behaviours among young people (Champion & Skinner, 2008). As such the HBM has been widely used to develop strategies to help clients learn to adopt healthy behaviours and to work with their clinicians to improve their health (Evans, 2008) as it helps to explain the lack of participation in Public Health Service programmes, responses to experienced symptoms, and medical compliance among the beneficiaries (Thompson, 2012). It has also been applied with considerable success to various health behaviours and populations, particularly preventive behaviours, such as diet, exercise, smoking cessation, vaccination, and contraception , positive risky sexual behaviours and sick role behaviours such as adherence to recommended medical treatments (Kagee, 2017). Sheeran and Abraham (1996) also distinguished three broad areas of research: (1) preventative health behaviours, (2) sick role behaviours, and (3) clinic use in which the HBM is applicable.

A criticism of this model, however, is that it lacks clear definitions of major components and the relationship between them. Thus the model has been criticised for inconsistent measurement in both descriptive and intervention research studies (Mimiaga, 2009). Personality, peer pressure, and perceived control over behaviour, are assumed to exert their effect via changes in the components of the Health Belief Model factors, such as

race/ethnicity, age, and level of education, which may influence knowledge and perceptions according to the Health Belief Model (Bakhtiar, 2017). This model assumes that individuals must be aware of the consequences of use; perceive that they are likely to experience these consequences and that the overall outcome is significantly detrimental to their well-being (Cronce, 2013).

Limitations of the model include failure to: (a)cater for a person's attitudes, beliefs, or other individual determinants that dictate a person's acceptance of health behaviour; (b)take into consideration the behaviours that are habitual and thus may inform the decision-making process to accept a recommended action (for example smoking); (c) consider behaviours that are performed for non-health related reasons such as social acceptability; and (d)account for economic factors that may prohibit or promote the recommended action. Other limitations include the fact that it assumes that every person has access to equal amounts of information on the illness or disease; that cues to action are widely prevalent in encouraging individual to act and that "health" actions are the main goal in the decision-making process (White,2019).

2.2 Prevalence of risky sexual behaviours

2.2.1 Risky sexual behaviours

Sex is a normal, healthy part of life. It should be fun and pleasurable for you and your partner. But it can also be risky if you or your partner does certain things that could spread disease or cause physical or emotional harm (Doku, 2012). Some of the practices that make sex risky include unprotected sex, having multiple sexual partners, anal sex, combining sex and drugs, and paying for sex.

Unprotected sex means having vaginal, anal, or oral sex without a condom. It makes onemore likely to get HIV and other sexually transmitted diseases (STDs) when bodily fluids like blood and semen pass from one partner to another during sex. Therefore, if one partner has HIV or another STD, even if they can pass the virus or infection to you (Parsons, et al 2000).

Having multiple sexual partners also increases the risk of contracting HIV or other STDs when one has more than one sex partner, or many sex partners during your lifetime because more people mean more chances that one or more of them will have HIV or an infection. (Shelton, 2009).

Anal sex means sex involving any type of sexual activity around the anal area. It is the riskiest kind of sex for both men and women to get and spread HIV and other STDs because anatomy of the anal area. The lining of the anus is much thinner than the vagina and as such it can be damaged much more easily which makes it much more vulnerable to infection (McBride & Fortenberry, 2010).

Combining sex with abuse of drugs increase the chance for risky sexual behaviors because, in addition to the effect of drugs on the mental status, there is also the tendency to share needles used in injecting drugs. This is because needles, water, bottle caps, spoons, or even cotton filters can all expose them to someone else's HIV-infected blood. They can get HIV and then transmit it through having unprotected sex (Jungwirth & Kuchler, 2006).

Paying for sex increases the tendency for risky sexual behavior because money tends to make people behave recklessly thus increasing the chances for contracting HIV and other STDs (Huschke & Schubotz, 2016). For instance, they may be paid more to have sex without condoms they may not have the power to demand that their clients use condoms. They are also more likely to abuse alcohol and other drugs.

2.3 Individual-related factors associated with risky sexual behaviors

Factors such as harmful social and gender norms, gender-based inequality, low secondary school attendance, and unequal power dynamics increase adolescents' sexual risks and vulnerabilities to HIV (UNAIDS 2016). The harmful practices are virginity testing, child marriages that encourage men to demand for their sexual "rights" (Ramjee and Daniels 2013). HMany students are reluctant to discuss their sexuality with their parents/guardian or service providers and this creates a gap on how to adequately address their SRHR needs.

Furthermore, very low economic empowerment and inadequate control of income may push young people into transactional sex and early marriage. Students tend to engage in risky behaviours that predispose them to negative health outcomes like STI including HIV/AIDS. Such risky behaviours include; multiple sexual partners, unprotected sex, alcohol and substance abuse. This kind of behaviour increases risk of non-adherence to medication and treatment failure in HIV positive individuals which increases morbidity and mortality rates.

Since adolescence is a physiological period of experimenting, discovery and trying to cope with the numerous changes in their life adolescents living with HIV/AIDS may not give the

necessary priority to HIV related issues in their lives thus increasing their morbidity and mortality (UNICEF 2013).

Young people more often cannot afford to pay for health services but must ask an adult to support them. Desperate, students will 'beg, borrow or steal' money for treatment, but may then seek help in the private sector so as to protect their privacy, even if this treatment is more expensive compared to services provided freely at the institutional clinics. Adolescents who are living with HIV/AIDS are less likely to receive treatment than adults (Idel, Amaya. et al. 2014, UNAIDS 2015) hence increasing mortality and morbidity among these groups. Since most university students are dependent on their parents and guardians, they may be prone to similar situations thus helping us to compare findings in this study. More so, age-disparate sexual activities, partner violence and men's relative control over sexual and health decision-making can also be contributing factors (Idele 2014).

The uptake of HIV Testing Services (HTS) among young people has been reported to be low and is one of the causes of the high morbidity and mortality in this age group (Idele, 2014). This is particularly due to their poor health seeking behaviours, low HIV risk perception, and fear of knowing one's HIV status and enabling environment for HTS being poor(Idele, 2014). Sexually active women in Uganda account for 16% compared with 36% for males. About 648000 women aged 15-19 years old in Uganda are reported to be sexually active but not ready to have a child for the next two years. According to MOH – Uganda, 60% women and 40 % men had had sex by age of 18 years among 15-24 years.

Some unethical behaviors such as lying and misleading others or speaking badly of others, abuse of power relationship to advance one's own agenda and/or to break trust with others or and to gain sexual favours have also been cited as factors contributing to risky behavior (Hugh Curran, 2018). University students may also be at risk of being misled by fellow students though such studies in universities have been limited.

Unethical behaviors in work places which may include such as sexual harassment and emotional abuse (Mackenzie, 2018) may also contribute to risky behavaior Another factor that has been raised is on consent policy. The consent policy has been reported as a key barrier to uptake of HTS by students (UNAIDS 2016). In many African countries, including Uganda, the legal age of consent to HTS is 18 years, leaving people younger than this having to obtain consent from their parents or guardians. Studies have revealed that requiring the

parent or guardian to consent to HTS might reduce access because of fear for negative reactions from the parents and guardians, or healthcare providers and fear for HIV-related stigma (Brandfield et al. 2005, Denison, Sweat et al. 2006) as part of the drivers towards risky sexual behaviour.

Another factor that has been raised is that of marginalisation. The marginalized people face discrimination and human rights violations, and they are often not included in sexual health services, hence increasing morbidity and mortality among them (UNAIDS 2015). Majority of university students are above 18 years old and can consent on their own but still the utilisation of Sexual health counselling services remains low although there is need to undertake studies to ascertain this. Such studies will be vital towards understanding factors affecting Sexual health counselling services in university.

Insufficient psychosocial support to HIV positive adolescents has also been reported as one of the causes of high HIV-related morbidity and mortality in this age group. These adolescents need psycho-social support through counselling services, peer support, and family support especially during and after disclosure. As children living with HIV grow older, their treatment, care and support also needs to change, and they face new challenges in adhering to medications (UNAIDS 2012).There is good evidence suggesting poor retention and adherence for adolescents living with HIV which results into; reduced quality of life, increased susceptibility to opportunistic infections and eventually death (Ross et al 2012). The university students live alone from their parents and tend to miss psychosocial support from family members and this could be affecting HIV .

Levels of knowledge of HIV among adolescents and young adults are low and girls tend to have worse knowledge levels than boys of the same age (Idele 2014). A recent demographic and health survey conducted in Uganda found that less than half of adolescent boys and girls (aged 15- 19 years) had a basic understanding of HIV (UBOS and ICF International 2017). However such findings may be different among university students of different sexes. A basic understanding of HIV and how it spreads (knowledge of specific risk factors such as sexual networks, anal sex, age-disparate sex), of newer biomedical prevention methods (such as Post Exposure Prophylaxis (PEP), Pre- Exposure Prophylaxis (PrEP)), and of links between HIV and gender-based violence (GBV) is an important component of combination prevention.

Adolescents in poor households, out of school, and living in rural areas are less likely to have comprehensive knowledge about HIV and AIDS. This study focused more on urban settings and the findings from this study may be diverse. Lack of knowledge is likely to be associated with poor health seeking behaviour, and risky sexual behaviours. In Niger, a study was done and evaluated safe space alone and safe space plus livelihood training component. Among girls they found out that girls in safe space were 69.7% more likely and no one benefited in delaying pregnancy and 18 years or older whereas girls in livelihood program were 227.7% more likely to get pregnant (Mercy, 2015) report. However, the study did not specifically target university students.

A similar study in Tanzania by Ross et-al (2007) found out that youth who received SRHR interventions reported significant increase in pregnancy prevention knowledge (male rate ration 1.66, 95% CI: 1.55-1.78) female rate ratio 1.58; CI 1.26-1.95 compared to the control group. Prior to this study, there had not such studies conducted among university students in the Kigezi sub region.

A WHO report reveals that comprehensive education and information involves the accurate, age – appropriate and up to date information on physical, psychological and social aspect of sexuality and reproduction as well as reproductive health and ill health (WHO, 2010). In health, information is key as people may not know that safe abortion includes providing information. WHO (2010) says that poor communication between parents and children about sexuality has been one of the factors contributing to risky sexual behavior (Temple, 2012). It emphasized that interactions should focus on rear information on reproduction and women health matters across the life-span. Personal factors like sexual knowledge, communication skills are also important predictors of health behavior and behavioral change provided by Sexual health services (Kamke, Stewart & Widman, 2022).

However, previous research has shown that preventing maternal death can be effective if information is available to support targeted response (Mathai et al, 2015). Studies are needed to investigate if sexual health information available to students can lead to reduction of sexual risky behaviors. Since it has been reported that 24900 adolescent girls who give birth each year do not receive all components of maternal and new born care recommended by WHO (MOH -Uganda, 2019).

2.4 Contextual factors associated with risky sexual behaviour

Adherence to preventive measures does not only depend on individual characteristics and the personal choices of young people but it is also associated with a number of contextual factors. Among the stages of the life cycle, adolescence has been associated with concerns about harm prevention and health promotion. Adolescents have been considered a vulnerable group for the acquisition of sexually transmitted infections (STIs) and unplanned pregnancies, mainly because they are seen as immature for making decisions related to their health (Spencer, Doull, and Shoveller, 2012). Accordingly, one of the main intervention strategies is the transmission of preventive information, aiming to promote healthy sexual behaviours. However, studies have indicated the lack of effectiveness of some of these actions, especially due to the fact that they do not consider the social, familial, and affective contexts of the adolescents (Moura et al., 2013).

In 2014, the World Health Organization (WHO) highlighted the failure by countries to invest in health strategies for this population, as the main cause of death among adolescents. The mortality was particularly found to be related to HIV infection/AIDS and other risk behaviors, such as motor vehicle accidents and suicidal behavior (WHO, 2014). In Brazil, an increasing trend for HIV infection/AIDS among boys aged 15 to 19 was found. The number of cases increased from 2.4 to 6.7 cases per 100,000 inhabitants in the previous 10 years (Brasil, 2013) respondents aged 15 to 24 presented a mean of 73.1% correct answers regarding forms of HIV transmission and prevention. However, only 61.0% had used condoms during their first sexual intercourse and only 35.1% used them with a steady partner, with 58.8% using them in the last sexual relationship with a casual partner (Brasil, 2013). Comparing the data from the 2013 survey with those from 2004, there was a decrease in condom use according to the age of the participant and the type of intimate relationship, with stable relationships being associated with a higher risk for inconsistent use (Brasil, 2013). These data highlighted the need to better understand the risk factors involved in sexual relations among adolescents.

The main sexual risk behaviors investigated in the literature have been the inconsistent condom use and early sexual initiation (e.g., before the age of 15) (Dallo and Martins, 2018; Espada, Morales, and Orgilés, 2014). Not using condoms exposes adolescents to STIs or unplanned pregnancies. Younger age at sexual initiation is associated with emotional

immaturity and a lower perception of risk and of the consequences of the actions, making these adolescents more vulnerable to group influences (Espada et al., 2014).

It is important to consider that risk situations involve factors other than access to information and characteristics typical of adolescence. For example, in contexts of greater social vulnerability, access to health services and education, which tends to be more precarious, leads to different opportunities to risk exposure when compared to more favourable socioeconomic contexts (WHO, 2014). For example, studies with adolescents living in the street or in institutions indicate a greater precocity of sexual relations when compared to adolescents living with their families (Zappe, Alves, and Dell'Aglio, 2018).

Sexual risk-taking may also be related to the family context. Adequate parental supervision, understood as not exceeding extremes of control or neglect, allied with positive and open dialog between the parents and children are related to the adolescent's health self-care behaviors (Wang et al., 2013). However, when adolescents face inflexible patterns when seeking autonomy, lack of emotional support, and communicational difficulties with their parents, risk-taking sexual activity may be greater (Siegel et al., 2014; Wang et al., 2013).

Family support is defined as a set of factors that include the encouragement of autonomy, affection, cooperation, and the organization of family rules. Family support was associated with risk behaviors and the mental health of university students in the study (Baptista, and Baptista,2010). Perception of low family support was significantly associated with higher reports of common mental disorders, higher frequency of risky sexual behaviors, self-harm, and lack of leisure activities (Souza et al., 2010).

In addition, studies have highlighted that health risk behaviours among adolescents may occur in more than one area, suggesting that there may be a causal sequence between them (Zappe et al., 2018). For example, increased sexual risk has been consistently associated with the use of licit and illicit substances, such as tobacco, alcohol, marijuana, and other drugs (Zappe and Dell'Aglio, 2016). Drug use has been related to early sexual initiation (González, et al, 2010) and to inconsistent condom use (Oliveira et al., 2014), together with greater social vulnerability and perceptions of more negative family relationships (Zappe and Dell'Aglio, 2016), lack of school attendance and dropout, and delinquent and offending behavior (Zappe et al., 2018).

Although studies show that the diffusion of preventive information increases knowledge about condom use, educative interventions do not occur consistently and tend to vary according to social strata (Brasil, 2013). Accordingly, the aim was to contemplate individual and contextual variables related to these sexual behaviors, especially the family, since most preventive programs only focus on individual behavior (Spencer et al., 2012). It is expected that the data can help identify risk and protective factors to be included in adolescent health promotion strategies from a systemic perspective.

2.5 Unmet needs for sexual health counselling

Schools are important places for bringing about behavior changes, promoting better health for students and teaching about self-care (Kudlova, 2004). Deshmukh (2020) carried out a study in school going children about sexual health knowledge, and found that, 38% of girls knew that babies were delivered through vagina, and only 20% of girls were aware the functions of the penis. Such knowledge among university students is based on assumptions with no updated study done. For example, a study by Deshmukh, (2020) found that boys know more about the female reproductive system and menstruation than girls (Deshmukh, 2020). A similar study by Gupta et al. (2017), also found that boys knew more about all reproductive health matters but 30% of respondent's thinking that menstruation was a disease (Deshmukh 2000). A related study by Kushwah et al., (2016), found that the respondents perceived menstruation as being shameful.

According to a study done by Bobhate et al. (2015), most girls faced restrictions during menstruations. The situation may be different among university students, which this study aimed to reveal. Although Deshmukh, (2000), found that three quarters of of all subjects knew how STD/HIV/AIDS are transmitted. Denno (2014) reported 41% infections among 15-year-olds. But despite the adolescent's awareness on how STI/ including HIV/AIDS are transmitted, research reveals that adolescents have high rates of STI than other age group with highest rate of gonorrhea among females 15 – 19 years of age (Taylor, 2000). Globally every year about 1.7 persons between ages of 10 and 19 million people lose their lives.

Studies by Kudlova (2014) in the Czech Republic, found that 50% of all the respondents knew HIV infection are among young people country wide. Many students die prematurity due to other causes like accidents and risky behaviors (Kadlova, 2014). Each year, suicide is the second-leading cause of death among those aged 15–24, with nearly 5,500 youth aged

10–24 committing suicide (CDC, 2014). Furthermore, it is believed that for every completed suicide in this age group there are between 100 and 200 suicide trials (Goldsmith et al, 2002). In a study done by Taylor 2000, 50% of participants reveal to use female condoms during intercourse. This was in agreement with Deshmukh (2020) findings which found out that 60% of respondents knew that pregnancy can occur if there is penetration of vagina by penis and ejaculation. According to Indian studies, 90% of females were not aware of legal status of abortion in India while a quarter of students knew the gestation for abortion(Deshmukh 2020).

 In Uganda abortion is illegal, and most students feel the need for more knowledge about sexual health as 2/3 want to talk and know more about STDS, contraception and other sex related matters (Deshmukh 2020). Less information on unmet need for sexual health counselling among undergraduate students is not well studied which this study will focused on. A study done in Turkey noted that, 62% of total students wanted to be informed of matters of sexual health and 60% wanted this sexual health information prior to the onset of puberty changes (Saadet et al., 2016, 2017).

In a study by Deshmukh, (2020) it was revealed that the main source of knowledge of sexual health was teachers, mass media and friends (Deshmukh, 2020). This is unfortunate since health workers were not mentioned, yet they are sources of knowledge on risky sexual behaviours. However, Testaye et al. (2015) found out 28% of parents, discussed about reproductive health related matters with the young people. Akerman (2018) did a study on knowledge about sexual reproductive health services among immigrant women in Sweden and found out that 37% of respondents believed that birth control pills protect against HIV/AIDS.

Couples living together and having children, were reported to use more contraceptive counseling than non-married partners (Akalman, 2018). This may justify the reason why university students continue to engage in risky sexual behaviors and this research study intended to get the real situation.

In a study by Meena et al. (2015) it was found that rural participants perceived themselves to be at higher risk of contracting sexual health problems due to lack of SRHR information (Meena et al, 2015). Since universities in Kigezi sub region attract students from rural areas,

such students may have negative risky sexual behaviors. Saavala (2011), noted that 68% of young men were aware of condoms and their HIV/AIDS preventive role and 40% of respondents knew of their role in preventing unwanted pregnancy.

Sexual health knowledge source were among groups and mass media (Meena, 2015) and such study revealed young men with formal early, correct, comprehensive SRHR information can have lifelong protective benefits to them and their partners (Meena, 2015) Tads', 2020, in his findings on sexual reproductive rights knowledge and reproductive health service utilization in Ethiopia, found out that of 833 subjects, 43% had good knowledge of Sexual health and 37% had used at least one sexual reproductive health services. Respondents who knew their rights to access to all SRHR services without husband permission were 36.7% (Tadesse, 2020). Similar study was needed in Uganda particularly among university students.

Furthermore, study shows that 59% of respondents did not agree with the statement of right to choose the partner and only 33% of participants knew about rights to decide whether or not and when to have children. (Tadesse 2020) This study will therefore reveal the level of students' rights in terms of Sexual rights. Tadesse (2020) found out that participants with formal education had about 27 times more likely to be knowledgeable about Sexual health counselling than those who did not attend formal education.

Related study identified participants who had highest sources of information were four times more likely to be knowledgeable than those who has no sexual information source (Tadesse 2020) and 48% had minimal age of lawful marriage information. (Tadesse 2020). Tadesse (2020) used Cronbach Alpha (x) to calculate the reliability of knowledge measuring tool. However, topics like SRHR are neglected, and availability of SRHR research- languages others than English are limited (Hussein et al, 2018).

According to (Sen and Govender, 2014), in their research showed that unique Sexual health counselling services are very urgently needed and not only HIV status and family planning. School is a central place where health activity programs should be conducted (Mulubwa, 2020). However, limited studies have been conducted to reveal unmet need for sexual health services among undergraduate students of universities in Kigezi sub region   which this study sought to find out. Demographic characteristic and SRHR services, research has shown that most health care services exclude university students and their needs (Sen and Govenda,

2014). This may explain why there is increased morbidity and mortality among young people.

World over 7.4 million and 3 million girls experience unintended pregnancy and unsafe abortion respectively and 1.3000.000 adolescent girls and 780.000 adolescent boys are living with HIV/AIDS globally. Every year 800.000 young people are infected (Denno, 2014) and 79% of these infections occur in sub-Saharan Africa. Young people worldwide account for 41% of new HIV infection among those aged 15 years or older and that youth suffer the highest burden of disease particularly those with who are poor, marginalized and disenfranchised of which university students are unexceptional.

In Burundi, women and children have been abandoned and denied medical care because of inability to pay medical costs (Govenda, 2014). In Sub Saharan Africa 68% of adolescents have unmet needs of contraceptive methods (Denno, 2014). The situation in Uganda is not well studied among undergraduate students and Covid 19 pandemic worsened and affected students greatly which this study will try to find out

Every year, Tanzania gets 3600 fistula cases (Komwihangiro, 1997) and most of girls who develop fistula were engaged into sex before menarche and had their babies before age of 15 (WHO, 1999). Taylor, (2020), found out that adolescents have higher rates of STI including HIOV/AIDS other than age group, with highest rates of gonorrhea cases among female 15-19 years of age. Besides Kiruvilla, 2018, also noted that 50% of mental problems are established by the age of 14 years and 75% by the age of 24 years. The university students' majority fall between 18-24 years old and therefore prone to mental health problems and risky sexual behavours which this study strive to find.

Women who struggle economically before age of 20 years had an increased risk of reduced physical activity in later life and their physical decline started a little bit earlier. (Kiruvilla, 2018). Uganda's total fertility rate is 5.9% children per woman and study shows that woman have two or more children than they actually desire. This also has its health effect on the entire family and individual woman (Clerk and Goodhast, 2016). Meanwhile, Clerk and Good Hast (2016) noted that increased maternal mortality in Uganda is due to unsafe abortion which contribute 25% and girls aged 18-19 years old, 77% of them are sexually active and teenage pregnancy is at 24% (Clerk and Good 2016). Currently teenage pregnancy prevalence is 26% as of 2020 (MOH Uganda, 2020).

Related studies conducted in Uganda found out that girls who did not go to school were married at 14 years of age compared to 18-20 years old for those who continued school and this was recommended by Murk 2009 who emphasized that for good health to young people but this was disagreed by Richards 2013 who found out that elderly people also have sexual health need and questions too. Old people are obliged to rights of receive information and education on their sexual and reproductive health free from age discrimination. (Richards, 2013) Uganda has over 140.000 women living with fistula and most of them occurred at an early age. This therefore calls for comprehensive Sexual health services (Murk, 2009). According to WHO, information sharing is critical component of participatory process to students. Participation can be meaningful if relevant information is available on time and in accessible languages, and format considering age, gender, ethnicity, religion to targeted audience.

In Uganda report on young woman aged 18-24 years old suffered emotional violence with 35% showing its symptoms (UNICEF, 2018) and recommended providing safe environment for children and youth focusing on sports and games. This is because 35.5% of girls and 16.5% of boys experienced sexual abuse in Uganda. Peta 2017 recommended that childbearing needs of people with disability must be emphasized. Much as the leading cause of young people in developing countries is maternal mortality and HIV/AIDS, more than 20 million young women aged 15-19 years have unmet needs for modern contraceptives methods (Plan International 2000 report).

Every year, globally, 3.9 million adolescent girls risk their lives due to unsafe abortion. Although Bowring 2000 noted integrating family planning with PrEP and HIV/AIDS services may prevent these concerns and support improved reproductive health and this was in agreement with Ampt 2020, who revealed that female sex workers also have unmet needs of contraceptives and other reproductive health services. Jordal 2015 noted that there is need to understand and explain the existing gender ideals that shape these behaviors. SRHR services gaps also exist in South Africa (Comins 2019).and this may justify high teenage pregnancy in African countries with 48%, Zambia and 24% Uganda (Menon 2018). There is no known single cause of death and disability for men aged 15-44 years that are close to the magnitude of maternal death and disability (Tanyag 2019). The well-being of young women is impacted by direct and indirect consequences of crisis and emergencies including wars (Tanyag 2019).

Meanwhile in a study done by Yaya 2019, identified the prevalence of women who experienced health problems were 54%. In sub-Saharan countries, child marriage was high; in Niger 81.7%, Chad 77.9%, guinea 72% Mali 69% and Nigeria 64% (Yaya 2019) but study done by Menon 2018, revealed prevalence of 24% as significantly high in Uganda. While teachers and parents were very hopeful in educating children about SRHR, in Bangladesh, a study revealed that discussing issues about sex is considered a social taboo and discomforting to parents, teachers and children (Maksurat 2016). Limited studies have been conducted to show such taboos in Uganda and in Kigezi region in particular. Religion may act as barrier and Sexual health as revealed by Takavalasha 2018, who noted that Pentecostal pastors in Africa push for prayers and not medicine and many have died of HIV/AIDS. This was disagreed by Manzou (2008) that religion can shape behavioral norms and practices of individuals' students.

Studies have revealed that religion played every important role in one's family and tribe of origin seemed to buffer the negative effect that the experience of sexual coercion had on the likelihood of having many sexual partners (Annette, 2011)

2.6 Research gap

Many scholars such as Dennis, Peter, Marion and Ndahi (2012) talked about risky sexual behaviours among adolescents but with the coming of COVID 19 inadequate studies have been researched on the sexual behaviours among university students during Covid 19 pandemic. Thus, the researcher investigated factors and magnitude associated with risky sexual behaviours among undergraduate students of Universities in Kigezi Region.

2.7 Summary of literature review

This chapter highlighted related literature that were suggested by several authors and it was done following research questions which included prevalence of risky sexual behaviours among undergraduate Students of Universities in Kigezi sub region, individual factors associated with risky sexual behaviors among undergraduate Students of Universities in Kigezi sub region, contextual factors associated with risky sexual behaviour among undergraduate Students of Universities in Kigezi sub region and unmet needs for sexual health counselling among undergraduate Students of Universities in Kigezi sub region.

CHAPTER THREE
METHODS AND MATERIALS

3.0 Introduction

This chapter shows the study area, research design, target population, sample size, data collection methods, data analysis techniques, ethical considerations and limitations of the study

3.1. Study Area

This study was conducted in Kisoro and Kabale districts. Kisoro District is located in the extreme South Western Uganda and forms the meeting point of the three countries of Uganda, Democratic Republic of Congo (DRC) and Rwanda. This district is occupied by three principal ethnic groups the majority being Bafumbira, followed by Bakiga and Banyarwanda. The district borders with Kanungu district in the north, Democratic Republic of Congo (DRC) in the west, Rwanda in the south and Rubanda District in the East. It has an estimated population of 301,800 people (UBOS Projected 2018). The district is divided into three Health Sub-districts of Bufumbira North, Bufumbira South and Bufumbira East with one University

Kigezi Sub region has one public university and a number of constituent colleges for private universities (Twinamatsiko,2021).The study was conducted in three selected universities designated A,B and C for ethical reasons.

The study was conducted among the undergraduate students of the universities with a toal population of about 7360 students.

3.2 Study Design

This adopted descriptive cross-sectional study design using quantitative and qualitative data collection approach.

3.3 Study population

They were students of University A, University B and University C. There are seven institutions of higher learning as illustrated in Appendix XIII: This is the population to which the study was generalized.

Target population were the undergraduate students

3.4 Sample Size determination and Sampling Technique

3.4.1 Sample size

Using the Kish Leslie and Morgan formula for sample size determination for cluster sampling (Kish, 1965);

$$n = \frac{z^2 pq}{d^2} \ X \ DEFF,$$

Where n = sample size, z = confidence interval (1.96) p = prevalence of risky sexual behaviours assumed to be 50% (0.5) . q = 1-P, d = degree of error 5%, Design Effect(DEEF) = 2.5

$n = \frac{1.96^2 \ X \ 0.5 X \ 0.5}{0.05^2} \ X \ 2.5, \ = 0.9604 \ X \ 2.5/ \ 0.0025$

Therefore n= 960

The sample size was increased by 10% of the estimated sample size to cater for non-response by some of the study subjects.

The total number of study participants required for this outcome was approximated to 1056.

3.4.2 Sampling Technique

The principal investigator used purposive sampling to select three universities, A, B and C out of seven in Kigezi Sub Region and was grouped into three clusters

The principal investigator then obtained total number of students in each university and then total number of undergraduate students for each university from Academic Registrar or Program coordinators in their respective universities. This helped to obtain sample size for each university using probability proportion size for enrolment. With the help of class president and research assistants, the principal investigator used simple random sampling without replacement to select pre-determined sample of 1056 respondents out of the target population and were selected randomly from undergraduate students.

The excess from the estimated sample size of 960 was to cater for non-respondents / incomplete responses. Probability proportion to size of student enrollment was used because it ensures that sampling unit in larger sites have same probability of getting into the sample as those in smaller sites. Giving larger clusters a greater probability of selection and smaller

clusters a lower probability in order to ensure that all units in the population have the same probability have been selected

The undergraduate programs were selected because of the similar age bracket (18-24 years) and the risky sexual behaviors. The age group of 18–24 years was chosen because it is above the legal age to consent and such young people have the autonomy to engage in risky sexual behaviors without parental restrictions or consent.

Upon reaching each lecture room, the principal investigator got names of all students present and their names folded into a box for each class, where one student was requested to select predetermined number of students from the box without replacement. . Those selected were listed and further assessed for eligibility and consent before the study began. The participants selected were then taken one at a time to the compound with seat for privacy during interviews. The data were collected by two Research Assistants (one male and one female) who were trained for two days at Mubano Hotel, Kisoro district and supervised by the principal investigator. They were properly oriented to understand the study objectives, study tools and all necessary data collection procedures plus ethical principles.

Two key informants were selected from each University (one guild representative and one University administrator) who were selected purposively. These statements provided in-depth information pertaining risky sexual behaviors among undergraduate students in their respective Universities.

A written advert, inviting potential research assistants was displayed at University A, University B and University C noticeboards and University social media (WhatsApp group) for at least one week with job description and terms of work and those eligible were selected for interview by the principal investigator. They were not students of any of the above university to avoid bias.

3.5 Data source
Both primary data and secondary data were collected;

3.5.1 Primary data
The primary data were collected from respondents and observations done during data collection at university clinics and their surrounding premises by Principal Investigator who

used observation checklist. This helped to collect data which corresponded to the study questions.

3.5.2 Secondary

These data were collected from University clinic.

3.6. Inclusion and exclusion criteria

The study included all students of the selected universities in 2021 studying any programme level in undergraduate programme. Students found at the University during data collection period were enrolled. Only students who gave informed written consent were included in the study. The study gave priority to marginalised student if present in each faculty. This was to ensure that their views were also taken into consideration. Both married and unmarried students were included in the study

Students doing other programs like PhD, Masters and Short courses were excluded, (see Table 1.6).

3.6.2. Variables

3.6.2.1 Independent variables

(a) These variables included: Individual- related factors such as; age, sex, marital status, peer pressure, history of rape, history of alcohol use history of defilement, knowledge of individual HIV status, circumcision status, labial pulling status, and history of pregnancy.

(b) Contextual factors such as culture, tribe, religion, beliefs on abortion, beliefs on circumcision, beliefs on IUD insertion, beliefs on condom use, beliefs on family planning use, beliefs on pulling of labia, beliefs on sexual education, beliefs on dressing in mini-skirts, dressing style.

(c) Unmet need for sexual health services, like Sexual health counselling, accessibility and availability of condoms, IEC materials, and family planning commodities. (Appendix VII)

3.6.2.2 Dependent variables

These included risky sexual behaviors

 This was determined by considering inconsistence condom use, having more than one sexual partner and being unfaithful to partners.

A student was regarded at risk of sexual behaviors if he/she is involved in any of the above parameters. (Appendix VII).

3.7. Study instrument design and validation

3.7.1 Questionnaires

Structured individual questionnaires were self-administered. The structured questionnaire is appropriate to scientifically elicit respondent's experiences one's life quantitatively.

3.7.2 Key informant interview guide

Key informant interviews were conducted on University administrators and Guild representatives with the help of key informant guide. These key informants ware selected because of their knowledge, expertise and their direct involvement and interactions with students at the university.

3.7.3 Observation check list

Observations were done with the help of observation checklist to collect data. This was helpful to triangulate findings (See Appendix XIX).

3.7.3 Measures to check bias and confounding in the study

There may be selection bias mainly because of choice of the study subject. This was minimised by simple random sampling of the participants. Programme level can predict one's knowledge of SRHR for example medical and nurses' students. Money for upkeep can predict one's ability to indulge in risky sexual behaviours, which in turn affects their health. University policies, Rules and Regulations may affect utilisation of Sexual health services. Stratification during analysis for the institutional policies, regulations and rules were used to control for these confounders. Triangulation during analysis was used to make conclusive remarks.

3.7.4 Validity

The questionnaire used in this research underwent three types of validity, which included; (1) content validity; (2) criterion- related validity; and (3) construct validity. This validation procedure helps to ensure that the questionnaire accurately measures what it intends to measure, regardless of the responder. A pre-test of questionnaires was carried out with a small representative sampling 5% at University C that permitted the researcher to find out if questions were measuring what they were supposed to measure. An SPSS soft template data

entry was used to record data. Investigator participated actively to collect the data in person to minimise bias and errors in interpretation of questions.

3.7.4.1 External validity

This is construct validity. Since we cannot observe directly all risky sexual behaviors therefore, we measure other indicators like non faithfulness to partner(s), inconsistence condom use, and having multiple sexual partners.

3.7.4.2 Content validity

Only measurements related to risky sexual behaviors were included.

3.7.4.3 Criterion validity

Substance use, inconsistence condom use, and having multiple sexual patterns were considered. This dealt with byuse of large sample size and Considering 10% increase of estimated sample size.

3.7.5 Internal validity.

This was ensured by following research procedures and using simple random sampling of respondents.

3.7.6 Reliability

Test-retest was used for the questionnaire. The questionnaire was pre tested in 5% of undergraduate students. This test was to resist factors in the response accuracy.

Inter observer reliability was handled by ensuring that all researchers agreed the categories on the observed phenomena /situation.

This helped to minimize subjectivity as much as possible during data collection. Researcher-compared ratings, were similar, and inter observer test reliability was high (observation check list was utilized).

The parallel approach was also used to ensure that two different questions yielded one answer.

Clear verbal information was given to respondents throughout the study period to ensure understanding and clarity. All questionnaires were cross checked at the point of data collection and before data entry and all tools were given identity numbers to ensure safety and specificity of data.

3.8. Ethical Considerations

Ethical clearance from Kabale University research and publication Committee was sought for conducting this research. The study was also presented to Research and Ethics Committee of Mbarara University of Science and Technology (MUST-2021-331) to seek for ethical approval to ensure the rights and interests of subjects as well as those of the public are respected. The researcher then obtained introductory letter from Kabale University secretary to allow him collect data from respondents.

A written informed consent was obtained for each study participant. Participation in the study was voluntary and participants were given the right of discontinuing in the study at any point of the study. The respondents were notified on the nature and objectives of the study prior to each interview and provided with consent forms for which to sign.

The research tools were kept securely where they had to be kept for at least two years in safe place before they can be safely discarded. The data obtained from respondents may be re-analysed for another study for publication and or lobbying for support. During the research study, students who needed sexual health services like sexual health counseling, sexual health information, STI including HIV/AIDS screening, contraceptives were referred immediately to nearby public health facilities in the area for further management. Observation of social distancing and standard operating procedures were adhered to. Both researcher and respondents ensured hand washing, put on face masks and 2 metre distance.

3.9 Data collection process

The study used qualitative and quantitative methods of data collection with a help of trained research assistants and principal investigator. A questionnaire was administered to the participant and had unique identification number and no name. To obtain genuine responses from respondents, questionnaires were self-administered (participant fill the questionnaire) to enable answering of sensitive and private affairs. The interview took 15-45 minutes to complete.

An interview guide was used in the collection of data that was explanatory in nature as per the respondent's understanding of events. Interview sessions between the respondent and the researcher helped the researcher and clarified areas of ambiguity obtained relevant information. The respondents were taken out of class to safe, secure and private area in the compound where seats had been secured for them. The interviewers were fairly close in age

to student participants (20–30 years old) and were gender-matched unless the participant requested otherwise (Michelle R. Kaufmana, 2019).

This study therefore used structured questionnaire for students during interview. To collect qualitative data, two key informant interviews were conducted for each University targeting; University administrator and Guild representative. Key informant guide was used to direct on the flow of questions. Information was recorded on note book to capture nonverbal communication and radio Recorder used. This key informant interview was taken at their offices unless otherwise and about 40-60 minutes were estimated for each key informant.

The principal investigator used data abstract form for reviewing medical records in university clinic for most common diagnosed diseases in the study period. While the principal investigator is interested in more qualitative data, observation made during the study period was captured using observation check list. Photos were taken during the study to capture contraceptive stocks and other prevailing situation. All these data collection methods are aimed to triangulate the findings. The questions used in the study tool were adopted and modified from the Uganda Demographic Health Survey and the Global School-based Student Health Survey tools. These tools are already validated, and are used to collect information on high-risk sexual behaviours.

The study employed multiple research instruments such as Questionnaires, Data Abstract form, observation check list and radio recorder to collaborate each other and triangulate the data (Silverman, 2010). Triangulation enables the study to examine the views of participants and informants from a variety of sources to increase credibility and trustworthiness (Yin, 2011).

3.10 Data Management and quality control

For data entry, all questionnaires had a unique respondent identifier and this number was not able to be tracked back to the respondents for confidential reasons. They were reviewed daily to ensure correctness and completeness of data. Data was coded for easy entry into the statistical software SPSS. On data entry, the data set was cleaned checking for completeness and consistency. Sanitising hands were done before and after handling the questionnaire to control and prevent Covid 19 transmission.

To reduce refusal to participate, the participants were interviewed by structured questionnaire for about 30 minutes to keep them engaged for a short time. The data collection tools were pre-tested on a small number of undergraduate students 5 % of the sample size selected randomly from University A, to check on their reliability. Adjustments, where necessary,

were made to improve the questionnaires. Two Research Assistants were trained by the principal investigator for the administration of the tools. Emphasized completion of the questionnaires before returning from the field. Necessary guidance to the respondents in respect to puzzling questions was provided. The principal investigator supervised the data collection exercise regularly. Daily data editing and cleaning to ensure consistence and completion was done.

3.11. Data Analysis

Data analysis was done using SPPS Version 23. Qualitative Data collected was categorized and analysed using thematic analysis approach. Themes and sub themes relevant to objective of the study was identified and developed codes and code definitions. Codes were grouped into categories and then themes. The coded transcripts were analysed by running query reports using SPSS version 23 and primary document tables of codes by objectives or theme and results were used to assess the magnitude of the issues. Key messages were selected based on code count or how illustrative to the theme the quotes were.

Quantitative data analysis was done with SPSS version 23. Both descriptive and inferential statistics was analyzed to determine the associations between Individual and Contextual factors, plus sexual health counseling services. Descriptive summary statistics of the students was used to describe the characteristics of the study population on sex, age, socio-economic, education level, pregnancy status, and sexual behavior. Summary statistics for categorical data was displayed as well.

To determine the association between the dependent and independent variables, a general logistic regression model was employed and variables were fitted into logistic regression. Variables that remain significant at a p-value of 0.05 were further analyzed using multivariate logistic regression model and variables were identified as independent factors associated with risky sexual behaviors.

Based on the above logical regressions, Odds Ratio and the chi square tests determined the similarity in the two groups using their data (outcome comparison) and determined relationships as well as associations between variables. Chi square tests was used to test the relationships between categorical variables. Adjusted Odds Ratio (AOR) with their corresponding 95% confidence intervals (95% CI) was computed using the Statistical Package for the Social Sciences version 23 and assessed the strength of the association between dependent and independent variables. (see Summary of analysis figure 3.0)

Data were analyzed using decision rule table. Decision rule table is an approach of making informed health decision. If a correct condition or combination of condition exists, then a specific action is taken. This table analyzes complex and multivariable decision well (Niebel, 2003) (Figure 3.1)

3.11. Study limitations

Since in this study participants were self-reporting on the required information, they may have recall bias. This would mainly affect questions on history of risky sexual behaviour. To control for this bias, the question on history of sexual abuse asked about only the past 4 months.

The study was based on client perceptions, examined personal and sensitive issues, obtaining honest responses among university students was difficult and prone to social desirability bias; however, this was minimized. The respondents were explained thoroughly on the objective of the study. Maintained confidentiality for each participant and ensured that questionnaire was administered in a private location. Only identification numbers were used and not names, and the study used a large sample size selected by simple random sampling. The principal investigator continued interviewing participants until the sample size reached and or saturation point reached, whichever came first.

Sensitive questions might have not been responded genuinely and this may under estimate prevalence of risky sexual behaviors. Explanations on rational of this study were over emphasized. Due to COVID 19 pandemic and closer of universities in second wave, most students studied online and inaccessible sample size was anticipated. Random selection of subjects who were eligible from each faculty was enrolled into the study. Since this was a cross sectional study, cause and effect of the most variables of interest could not be established. Thus, prevalence of risky sexual behavior was determined. The risky sexual behaviors from this study may not be generalized to youths out of school as this is University based study.

Lastly respondents with special needs and from marginalised groups were few and therefore priority was given to them so that their views are represented.

3.12 Dissemination of results

The study report was produced and given to; University B, University C and University A resource centres and University libraries. A summary report was given to district local

government health offices and municipality health officers (District Health Office, and PMO) in the area. Also, the summary report was displayed at the each of the universities involved in the study as well as Hospitals. Finally, to MOH, (Department of Adolescent and school health) and other agencies/organisations carrying out SRHR related activities. The findings were are also presented in conferences, symposia and published in peer review journals. (Only aggregate of the results were displayed and reference provided for more information for ethical reasons).

CHAPTER FOUR

PRESENTATION OF STUDY FINDINGS

4.0 Introduction

The study determined factors associated with risky sexual behaviors among undergraduate students in selected public and private Universities in Kigezi sub region. Profiles of the respondents in this study were described according to age, sex, religion, Family Dependent, Living in School, Students source of medical services and Respondents Year of study. The gender distribution in the study were males 597(56.5%,) and 459 (43.5%) were females. The predominant religion in the study was Christians with about 1015 (96.1%) and about 877(83%) study participants lived with parents. Most students were in age range of 20-22 with 548(51.9%) and about 859 (81.3 %,) were not Living in University hostels. Further details are presented in the table below (table 4.1).

4.1.2   Factors associated with risky sexual behaviour

Table 4. 1:The Socio-demographic characteristics of the respondents at 95% CI (n= 1056)

Study item questions	Variables Options	Frequency	%	95% Confidence Interval
Study Respondent Gender	Male	597	56.5	(.53482183 - .595494851)
	Female	459	43.5	(.404505149 - .46517817)
Study Respondent's Religion	Christian	1015	96.1	(.947694852 - .971996513)
	Non- Christian	41	3.9	(.028003487 - .052305148)
Family Dependent	Living with parents	877	83	(.806476312 - .85264975)
	Living with a Guardian	179	17	(.14735025 - .193523688)
Living in School	Living in university hostel	197	18.7	(.163483681 - .211383588)
	Not living in university hostel	859	81.3	(.788616412 - .836516319)
Age of student	18-19 years	67	6.3	(.049505288 - .079878498)
	20-22 years	548	51.9	(.488313564 - .549459403)

	23-24 years	441	41.8	(.387660561 - .44802715)
Students source of medical services	University clinic	526	49.8	(.467517057 - .528705646)
	Nearby Private clinic	357	33.8	(.309547991 - .367494153)
	Public health care facility	173	16.4	(.141990404 - .187552538)

b. Other respondents; characteristics are the proportion of Students from Each Universities in the study and type of University (based on Ownership). Out of the study participants comprising 1056 about,606 (57.4%, Confidence Interval) were from public and 450 (42.6%,) was from private University.

Table 4. 2:Other Socio-demographic characteristics of the respondents 95% CI (n= 1056)

Respondents Year	Students' Level	Frequency	%	95% Confidence Interval
Year of student	First Year	348	33	(.301229888 - .358814602)
	2 years	398	37.7	(.347569688 - .406906449)
	3 years	288	27.3	(.246056603 - .30067088)
	4 years	22	2.1	(.013101075 - .031372803)
Proportion of Students from Each Universities in the study	Kabale University	606	57.4	(.543392824 - .603921665)
	Bishop Barham University	350	33.1	(.303077453 - .360744292)
	Metropolitan University	100	9.5	(.077712841 - .113977452)
Type of University (based on Ownership)	Public	606	57.4	(.543392824 -.603921665)
	Private	450	42.6	(.396078335 - .456607176)

The pie chart below shows that study participants from University C form greater percentage of 57.39% of all the study respondents.
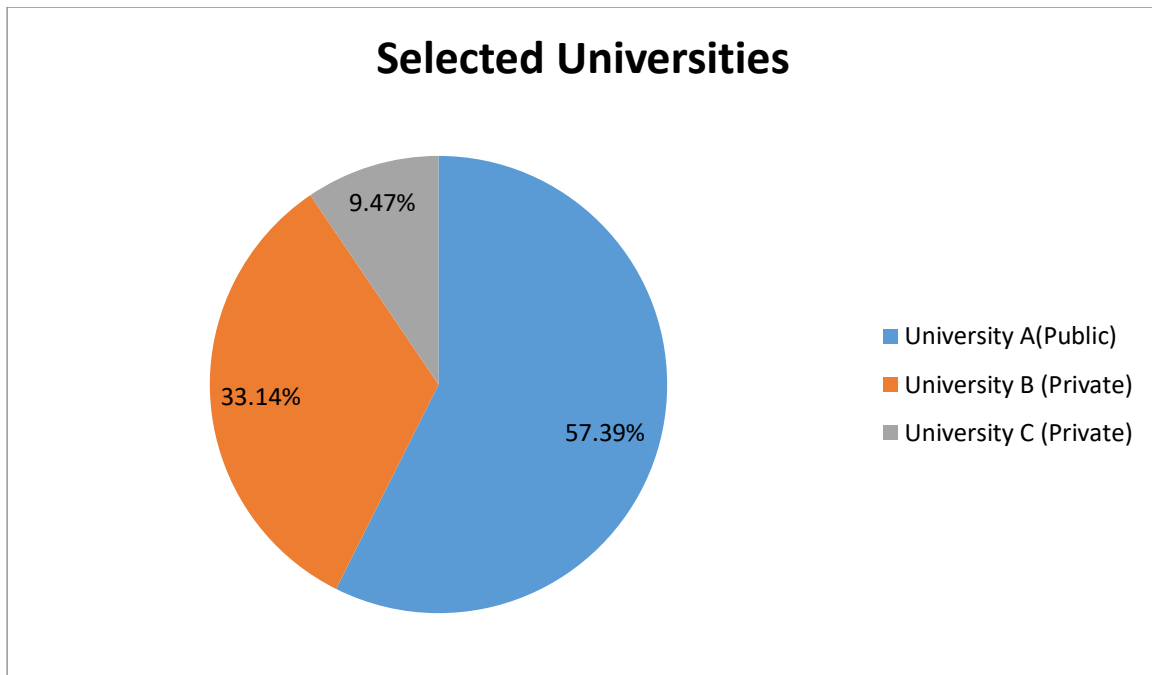
Figure 2:Showing Selected Universities in Kigezi region

The bar chart below showed that students from University C account for half the total study population and is a public University, unlike the other two Universities that were private based institutions.

What is the prevalence of risky sexual behaviours among undergraduate in selected public and private Universities in Kigezi sub region?

Finding from the students on Prevalence of risky sexual behaviours during COVID 19 pandemic, showed that about, 466 (44.1%) strongly agree that alcohol misuse could make one lose concentration and engage on risky sex. Other findings revealed that 374 (35.4%) strongly agree that extreme cold weather of the in Kigezi sub region could increases the risk of causal risky sex. While about 487 (46.1) agree that inconsistent and none used condom protection during sex carry great risk and about 447 (42.3%), agree that poor sexual risk behaviour awareness increases vulnerability More details are presented in the table below (table 4.1)

4.2 Quantitative data

4.1.1 Prevalence of risky sexual behaviours

The study findings revealed variable that composed of risky sexual behavours as follows; multiple sexual partners with 494 (47%) , inconsistent condom use with

214(20%) and non-faithfulness of 348(33%). The researcher therefore considered highest variable to make deduction of prevalence of risky sexual behavours of 47%

Table 4. 3: Item questions on prevalence of risky sexual behaviours and its distribution

Questions	Yes	No
Do you have multiple sexual partners?	494 (47%)	562(53%)
Do you use condoms consistently every time you have sexual intercourse?	842(80%)	214(20%)
Do you think you are more faithful to your sexual partner?	708 (67%)	348(33%)

Figure: Chart on Prevalence of risky sexual behavours
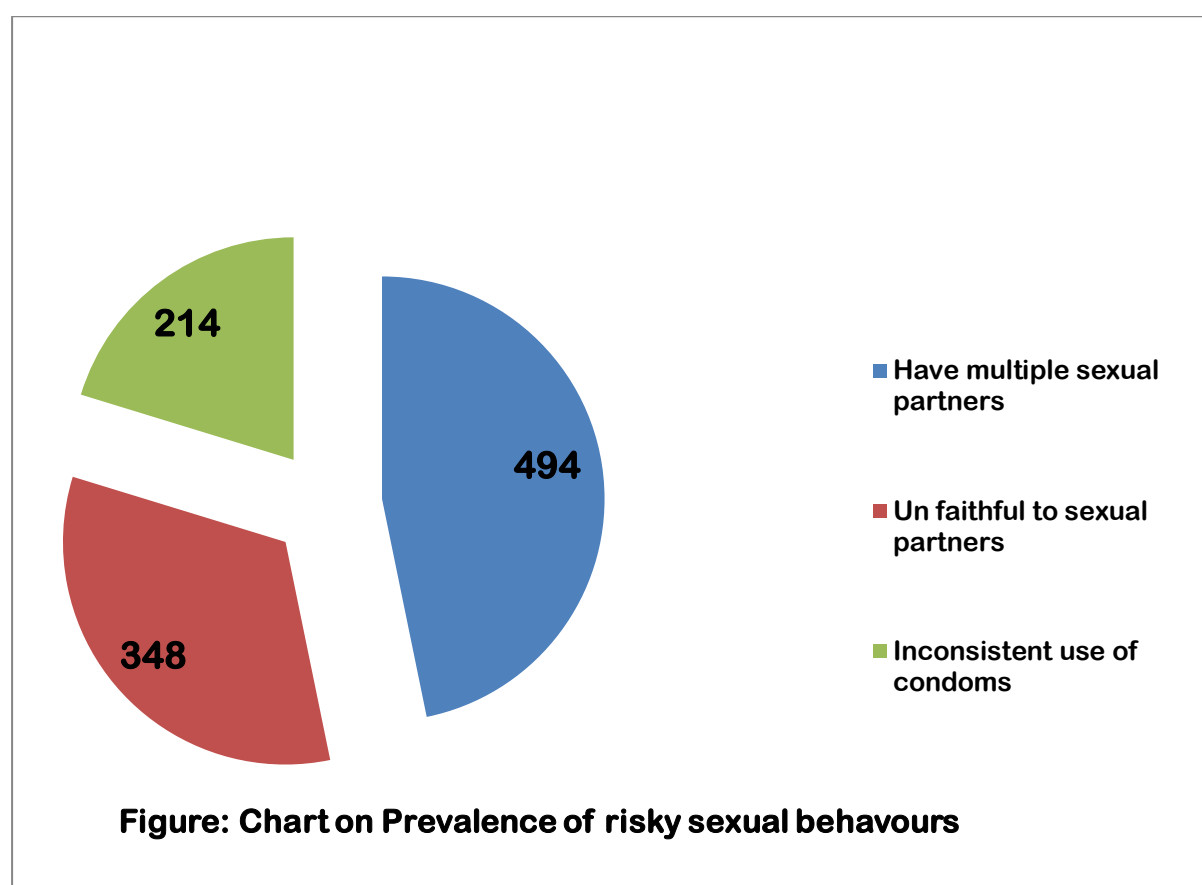
Figure 3:Prevalence of risky sexual behaviours

Table 4. 4:Factors associated risky sexual behaviors among undergraduate Students aged 18-24 in selected public and private Universities in Kigezi sub region

(Strongly Agree = 5 Agree = 4 Not sure = 3 Disagree = 2 strongly Disagree = 1.)					
Questions on the prevalence of risky sexual behavior	5	4	3	2	1
Alcohol misuse could make one lose concentration and engage on risky sex	395 (37.4)	466 (44.1)	32 (3)	86 (8.1)	77 (7.3)
Uncircumcised males are more likely to have infection from unsafe sex	294 (27.8)	509 (48.2)	61 (5.8)	110 (10.4)	82 (7.8)
Indecent dressing makes girls at risk of sexual harassment	375 (35.5)	505 (47.8)	52 (4.9)	73 (6.9)	51 (4.8)
Limited access to condom protection increases sexual related disease risks	321 (30.4)	498 (47.2)	56 (5.3)	109 (10.3)	72 (6.8)
Extreme cold weather of the region increases the risk of causal risky sex	229 (21.7)	374 (35.4)	81 (7.7)	193 (18.3)	179 (17)
Inconsistent and non-use of condom protection during sex carry great risk	299 (28.3)	487 (46.1)	83 (7.9)	111 (10.5)	76 (7.2)
Poor sexual risk behaviour awareness increases vulnerability	278 (26.3)	447 (42.3)	117 (11.1)	123 (11.6)	91 (8.6)

1.b   In attempt to categorize the responses about 494 (46.8%) of the students in the study belong to high level awareness of prevalence of risk sexual behavior as presented in the pie chart below.

Table 4. 5:Distribution of result of crosstab between University Ownership and prevalence behaviour Associated Factors

The relationship in crosstab between University Ownership and prevalence behaviour Associated Factors							
Study Variable Items	Having multiple sexual partners	Being unfaithful to sexual partners	Inconsistent condom use	Chi-square	DF	P - Value	Interpretation

Universit y Ownershi p	Public Universit y	324 (53.5)	175 (28.9)	107 (17.7)	25.531 a	2	0	Significant
	Private Universit y	170 (37.8)	173 (38.4)	107 (23.8)				

The relationship in crosstab between University Name and prevalence behaviour Associated Factors								
Name of university	University C	324 (53.5)	175 (28.9)	107 (17.7)	26.277 a	4	0	Significant
	University B	132 (37.7)	132 (37.7)	86 (24.6)				
	University A	38 (38)	41 (41)	21 (21)				

The relationship in crosstab between living in School or not and prevalence behaviour Associated Factors								
Livin g in schoo l or not	Living in university hostel	84 (42.6)	63 (320	197 (100)	4.085a	2	0.13	Not Significant
	Not living in university hostel	410 (47.7)	285 (33,2)	164 (19.1)				

The relationship in crosstab between Students Gender and prevalence behaviour Associated Factors								
Students gender	Male	279 (46.7)	196 (32.80)	122 (20.4)	.027a	2	98.70 %	Not Significant

	Female	215 (46.8)	152 (46.8)	92 (20)					

1. d. Result of Multinomial regression analysis on the relationship between the un met need for sexual health services and prevalence of sexual risk behaviors

Further statistical analysis with multinomial regression analysis showed two variables that are statistically significant with prevalence of risk sexual behaviors. They were the unmet need for sexual health activities and unmet need for sexual counseling (p- Value = 0.000 < 0.05 and p- value = 0.000< 0.05) respectively

Table 4. 6:Result from Multinomial regression analysis on the relationship between the unmet sexual health services and prevalence of sexual risk behaviors

Parameter Estimates									
Prevalence of risk sexual behaviours[a]		B	Std. Error	Wald	df	Sig.	Exp.(B)	95% Confidence Interval for Exp. (B)	
								Lower Bound	Upper Bound
High level risk prevalence	Intercept	-20.360	.372	2989.616	1	.000			
	School activities unmet=1.00]	-4.216	.472	79.657	1	.000	.015	.006	.037
	School activities unmet=2.00]	0[b]	.	.	0	.	.	.	.
	Sexual counseling need=1.00]	-.375	.388	.935	1	.334	.687	.321	1.470
	Sexual counseling need=2.00]	0[b]	.	.	0	.	.	.	.

	B	Std. Error	Wald	df	Sig.	Exp(B)	Lower Bound	Upper Bound
Sexual needs unmet =1.00]	44.100	.000	.	1	.	14197264783272212000.000	14197264783272212000.000	14197264783272212000.000
Sexual needs unmet=2.00]	3.589	1693.149	.000	1	.998	36.193	.000	.c
Sexual needs unmet =3.00]	0b	.	.	0	.	.	.	.
Moderate level risk prevalence Intercept	-2.305	.295	61.035	1	.000			
School activities unmet=1.00]	-2.960	.410	52.126	1	.000	.052	.023	.116
School activities unmet=2.00]	0b	.	.	0	.	.	.	.
Sexual counseling need=1.00]	.187	.303	.380	1	.538	1.205	.666	2.182
Sexual counseling need=2.00]	0b	.	.	0	.	.	.	.
Sexual needs unmet=1.00]	24.335	.000	.	1	.	37033062482.496	37033062482.496	37033062482.496
Sexual needs unmet=2.00]	5.739	.422	184.676	1	.000	310.670	135.783	710.808
Sexual needs unmet =3.00]	0b	.	.	0	.	.	.	.

a. The reference category is: Low level risk prevalence.

b. This parameter is set to zero because it is redundant.

c. Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing.

Further analysis on the relationship between environmental related risk factors and individual / students' personal risks and prevalence of sexual risk behaviors showed that students' personal risks was statistically significant with (p- value = 0.000 < 0.05)

Table 4. 7: Result from Multinomial regression analysis on the relationship between the environmental related risk factors and individual /students' personal risks and prevalence of sexual risk behaviors

Parameter Estimates									
Prevalence of risk sexual behaviors		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
High level risk prevalence	Intercept	-1.365	.200	46.544	1	.000			
	Environment related risk=1.00]	-.264	.189	1.951	1	.163	.768	.531	1.112
	[Environment related risk=2.00]	0[b]	.	.	0	.	.	.	.
	Students personal risks=1.00]	2.514	.246	104.458	1	.000	12.351	7.627	20.001
	Students personal risks=2.00]	1.029	.235	19.129	1	.000	2.798	1.764	4.437
	Students personal risks=3.00]	0[b]	.	.	0	.	.	.	.
Moderate level risk prevalence	Intercept	-.186	.140	1.767	1	.184			
	Environment related risk=1.00]	.312	.153	4.140	1	.042	.732	.542	.989
	Environment related risk=2.00]	0[b]	.	.	0	.	.	.	.

Students personal risks=1.00]	1.372	.205	44.982	1	.000	3.945	2.641	5.891
Students personal risks=2.00]	.868	.169	26.491	1	.000	2.383	1.712	3.316
Students personal risks=3.00]	0[b]	.	.	0	.	.	.	.

a. The reference category is: Low level risk prevalence.

b. This parameter is set to zero because it is redundant.

1. What are the individual factors associated with risky sexual behaviours among undergraduate Students in selected public and private Universities in Kigezi sub region?

The results from the individual factors associated with risky sexual behaviors, revealed that, 460 (43.6%) of participants believe that idleness during COVID lockdown pushes casual sex behavior and about 442 (41.9%) of young people are pushed by financial pressure to engage in sex for money to solve crucial need. Other students 404 (38.3%) responses showed that they arejust trying to belong to their peers or lures to unsafe sex and about 448 (42.4%) were under peer pressure influence.

Table 4. 8:Individual level factors associated with risky sexual among undergraduate Students in selected Universities in Kigezi sub region

Individual level factors in student risky sexual behaviors (Strongly Agree = 5 Agree=4 Not sure =3 Disagree = 2 Strongly Disagree =1.)					
Questions items for Individual level factors in student risky sexual behaviors	5	4	3	2	1
Being young and fragile made me be able to overcome sexual harassment and abuses during the lockdown	212 (20.1)	361 (34.2)	82 (7.8)	219 (20.7)	182 (17.2)
As a weaker gender, men usually overpowers me to have sex with me	143 (13.5)	317 (30)	131 (12.4)	242 (22.9)	223 (21.1)
Idleness during COVID lockdown	289	460	76	137	94

pushes casual sex behavior	(27.4)	(43.6)	(7.2)	(13)	(8.9)
Being single without spouse makes me try to get a spouse by trying to satisfy my partner through sex to hasten marriage	270 (25.6)	361 (34.2)	112 (10.6)	202 (19.1)	111 (10.5)
Peer pressure influence me to indulge in risky sexual behaviors	228 (21.6)	448 (42.4)	77 (7.3)	185 (17.5)	118 (11.2)
Trying to belong to my peers often lures to unsafe sex	199 (18.8)	404 (38.3)	107 (10.1)	206 (19.5)	140 (13.3)
Financial pressure pushes young people to engage in sex for money to solve crucial need	392 (37.1)	442 (41.9)	56 (5.3)	105 99.90	61 62 (5.8)

2b. On categorization of their responses into three categories for easy analysis the result showed about 348 (33%) had high level of individual risk behaviour, details find in the table below.

Table 4. 9:Categories of individual sexual behaviors.

Individual level risk behaviour of students	Frequency	%
High level individual sexual risk behaviors	348	33
Moderate level individual sexual risk behaviors	380	36
Low level individual sexual risk behaviors	328	31.1

2c. The study findings showed significant relationship between individual risk behavior and name of the University (p- value .000 < 0.05), type of University and students age with (p-value = .000 < 0.05 and   p – value = 0.006 < 0.05) respectively.

Table 4. 10:Distribution of individual risk behaviour with other demographic study variables

Individual level risk behaviour of students

Study Variables		High level individual sexual risk behavior	Moderate level individual sexual risk behaviors	Low level individual sexual risk behaviors	Chi-square	DF	P-value	Interpretation
Name of university	University C	250 (41.3)	205 (33.8)	151 (24.9)	51.082a	4	.000	Significant
	University B	71 (20.3)	136 (38.9)	143 (40.9)				
	University A	27 (27)	39 (39)	34 (34)				

Individual level risk behaviour of students								
High level individual sexual risk behaviors								
Type of university	Public	250 (41.3)	205 (33.8)	151 (24.9)	48.841a	2	0	Significant
	Private	98 (21.8)	175 (38.9)	177 (39.3)				
Individual level risk behaviour of students								
		High level individual sexual risk behaviors	Moderate level individual sexual risk behaviors	Low level individual sexual risk behaviors				
Students Gender	Male	207 (34.7)	219 (36.7)	171 (28.6)	4.002a	2	0.135	Not Significant
	Female	141 (30.7)	161 (35.1)	157 (34.2)				

Individual level risk behaviour of students							
		High level individual sexual risk behaviors	Moderate level individual sexual risk behaviors	Low level individual sexual risk behaviors			
Age of student	18-19 years	23 (32.4)	26 (36.6)	22 (31)	8.847 a	4	0.06 5	Not Significant
	20-22 years	174 (31.8)	182 (33.3)	191 (34.9)			
	23-24 years	151 (34.5)	172 (39.3)	115 (26.3)			

Further analysis on the relationship between individual risks behavior and environmental related risk factors, sexual health unmet need and school sexual activities. Both sexual health services unmet need and school sexual activities (p- value = 0.000 < 0.05 and p- value = 0.000 < 0.05) while high level environmental related risk factors are with (p- value = 0.03 < 0.05).

Table 4. 11:Result from Multinomial regression analysis on the relationship between the environmental related risk factors, sexual reproductive health unmet needs and school sexual activities with individual level risk behaviors students personal risks

Parameter Estimates									
Individual level risk behaviour of students[a]		B	Std. Error	Wald	df	Sig.	Exp.(B)	95% Confidence Interval for Exp. (B)	
								Lower Bound	Upper Bound
High level individual sexual risk	Intercept	-.481	.208	5.362	1	.021			
	Environment related risk=1.00]	-.837	.182	21.148	1	.000	.433	.303	.619
	Environment related risk=2.00]	0[b]	.	.	0	.	.	.	.

50

		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
behaviors	Sexual needs unmet=1.00]	2.446	.232	111.147	1	.000	11.537	7.322	18.178
	Sexual needs unmet=2.00]	1.233	.223	30.471	1	.000	3.433	2.216	5.320
	Sexual needs unmet=3.00]	0[b]	.	.	0	.	.	.	.
	Sexual counseling need=1.00]	-.304	.178	2.925	1	.087	.738	.521	1.045
	Sexual counseling need=2.00]	0[b]	.	.	0	.	.	.	.
	School activities unmet=1.00]	-.826	.185	19.829	1	.000	.438	.304	.630
	School activities unmet=2.00]	0[b]	.	.	0	.	.	.	.
Moderate level individual sexual risk behaviors	Intercept	-.095	.176	.292	1	.589			
	Environment related risk=1.00]	-.335	.159	4.448	1	.035	.715	.524	.977
	Environment related risk=2.00]	0[b]	.	.	0	.	.	.	.
	Sexual needs unmet=1.00]	1.119	.200	31.197	1	.000	3.060	2.067	4.532
	Sexual needs unmet=2.00]	.702	.181	15.003	1	.000	2.017	1.414	2.877
	Sexual needs unmet=3.00]	0[b]	.	.	0	.	.	.	.
	Sexual counseling need=1.00]	-.083	.166	.250	1	.617	.921	.666	1.273
	Sexual counseling need=2.00]	0[b]	.	.	0	.	.	.	.
	School activities unmet =1.00]	-.260	.164	2.524	1	.112	.771	.560	1.063
	School activities unmet=2.00]	0[b]	.	.	0	.	.	.	.

a. The reference category is: Low level individual sexual risk behaviors.

b. This parameter is set to zero because it is redundant.

2. What are contextual factors associated with risky sexual behaviour during COVID 19 pandemic among undergraduate Students aged 18-24 in selected public and private Universities in Kigezi sub region?

Study participants responses from the contextual factors associated with risky sexual behaviors, revealed that, about 676 (64%, (.610371192 - .669148127) responses showed that community culture does not frown at reckless sexual behaviour and 712(67.4%) responses shows that border communities have high activities of migrants and with risky sexual behavior. The responses with regards to dress results from about 806 (76.3) showed 712 (67.4%) revealed absence of dress code policy in some higher institutions contributes indecent dressing and sexual harassment. Other details are presented in the table below (table 4.6).

Table 4. 12:Contextual factors associated with risky sexual behaviour during COVID 19 pandemic

Items Questions on the contextual factors that predispose students to risky sexual behaviors	Yes / %	95% Confidence Interval	No / %	95% Confidence Interval
Community culture does not frown at reckless sexual behaviour	676 (64)	(.610371192 - .669148127)	380 (36)	(.330851873 - .389628808)
Border communities have high activities of migrants and with risky sexual behaviour	712 (67.4)	(.645046337 - .702463679)	344 (32.6)	(.297536321 - .354953663)
Absence of dress code policy in some higher institutions contributes indecent dressing and sexual harassment	806 (76.3)	(.736432363 - .78860673)	250 (23.7)	(.21139327 - .21139327)

Over protection by parents at home, exacerbate the need among youths to enjoy liberty through sexual experiments	630 (59.7)	(.566293169 - .626348767)	426 (40.3)	(.373651233 - .433706831)
Freedom at university create room time steal sex from numerous admirers	760 (72)	(.691546955 - .746616711)	296 (28)	(.253383289 - .308453045)
Extreme climate of cold forces people to seek warmth in the arms of admirers and unsafe sex	569 (53.9)	(.508213617 - .569220957)	487 (46.1)	(.430779043 - .491786383)

The data after categorization into three categories for easy analysis the result showed about 387 (36.6%) had high level of environmental risk behaviour, details find in the table below.

Table 4. 13: Sexual risks from the students' environment

Sexual risks from the students environment		
Sexual risks from the students environment	Frequency	%
High Environment linked risk	387	36.6
Medium environment linked risk	669	63.4

Range = 6, Maximum = 6, Maximum = 12

The study findings showed significant relationship between contextual risk behavior and name of the University (p- value .006 < 0.05), type of University and students age with (p-value = .003 < 0.05 and   p – value = 0.006 < 0.05) respectively. Also statistically significant at the level of 0.05 were year of student/ Level of the student in the school and age of the students with (p- value = .015 < 0.05 and   p – value = 0.003 < 0.05) respectively.

Table 4. 14:Interpretation on Sexual risks from the students' environment

		High Environment linked risk	Medium environment linked risk	Chi-square	DF	P - value	Interpretation
Name of University	University C	199 (32.8)	407(67.2)	10.153 a	2	0.006	Significant
	University B	151 (43.1)	199 (56.9)				
	University A	37 (37)	63 (63)				
Type of university	Public	199 (328)	407 (67.2)	8.889a	1	0.003	Significant
	Private	188 (41.8)	262 (58.2)				
Year of student/ Level of the student in the school	1 year	133 (38)	217 (62)	10.438 a	3	0.015	Significant
	2 years	151 (37.7)	250 (62.3)				
	3 years	92 (31.8)	197 (68.3)				
	4 years	11 (68.8)	5 (31.3)				
Age of student	18-19 years	40 (56.3)	31 (43.7)	12.720 a	2	0.002	Significant
	20-22 years	192 (35.1)	355 (64.9)				
	23-24 years	155 (35.4)	283 (64.6)				

3. What are the unmet needs for sexual health services during COVID 19 pandemic among undergraduate Students aged 18-24 in selected public and private Universities in Kigezi sub region?

Findings from the study on unmet needs for sexual health services during COVID 19 pandemic, revealed that 673 (63.7%, .607488874 - .666364539) have Limited Family planning program and activities in the university. Furthermore, about 480 (45.5%, .424202514 - .485142381) respondents showed that there is no Condom made available and accessible to them. See other details in the table below (table 4.8).

4.1.3 Unmet need

Table 4. 15:Unmet need for family planning services

Question items on unmet need for family planning services	Yes / %	95% Confidence Interval	No / %	95% Confidence Interval
Limited Family planning program and activities in the university	673 (63.7)	(.607488874 - .666364539)	383 (36.3)	(.333635461 - .392511126)
Sexual Education and protection (condom) not regularly provided	657 (62.2)	(.592134817 - .651500408)	399 (37.8)	(.348499592 - .407865183)
Condom made available and accessible to all students	576 (54.5)	(.514857619 - .575797486)	480 (45.5)	(.424202514 - .485142381)
Family planning session available separate for males and females	526 (49.8)	(.467517057 - .528705646)	530 (50.2)	(.471294354 - .532482943)

Table 4. 16:Categories of unmet needs for sexual health services

Unmet needs for sexual services	Frequency	%
High level individual sexual risk behaviors	388	36.7
Moderate level individual sexual risk behaviors	364	34.5
Low level individual sexual risk behaviors	304	28.8

Range 32, Minimum = 11, Maximum = 43

What is the unmet need for sexual health counselling services**?**

Findings from the study on unmet needs for sexual health counselling in the study showed that about 666 (63.1%, .600767701 - .659865261) responded that there were no sexual health counseling corner available when the need arise and for confidentiality. Importantly to note,that 642 (60.8%, .577767904 - .637537729) study respondents response revealed that the

needed sexual health counseling services are not available.Other details are presented in the table below (table 4.10)

Table 4. 17:Unmet need for sexual health counseling services

Questions items on unmet needs for sexual health counseling services	Yes / %	95% Confidence Interval	No / %	95% Confidence Interval
Sexual health counseling corner not available when the need arise and for confidentiality	666 (63.1)	(.600767701 - .659865261)	390 (36.9)	(.340134739 - .399232299)
Sexual health education and information counseling not regularly provided	660 (62.5)	(.595011375 - .654289765)	396 (37.5)	(.345710235 - .404988625)
Mental health counseling and support services not existing	644 (61)	(.579681976 - .639400939)	412 (39	(.360599061 - .420318024)
Absence university counselors to seek help from as the arise	547 (51.8)	(.487367134 - .548517185)	509 (48.2)	(.451482815 - .512632866)
Needed sexual health counseling services are not available	642 (60.8)	(.577767904 - .637537729)	414 (39.2)	(.362462271 - .422232096)

Table 4. 18:Categorization of Unmet need for sexual counseling

Unmet need for sexual counseling	Frequency	%
High level need for sexual counseling	626	59.3
Low level need for counseling	430	40.7

Range 5, Minimum,5, Maximum = 10

What is the unmet need for sexual health activities during COVID 19 pandemic?

Findings from the study on unmet needs for sexual health activities during COVID 19 pandemic, revealed that 637 (60.3%, 95%CI (.591176201 - .650570386) University clinics lack information education communication material for sexual health sensitization. Despite the increase in modern technology of ICT, 682 (64.6%) of all respondents reported inadequate Social media platform for students to access sexual health information in the university site. Other details are presented in the table below (table 4.11)

Table 4. 19: Unmet need for sexual health activities of the university

Unmet need for sexual health activities of the university	Yes / %	95% Confidence Interval	No / %	95% Confidence Interval
University clinic lack information education material for sexual health sensitization	656 (62.1)	(.591176201 - .650570386)	400 (37.7)	(.349429614 - .408823799)
None existence program for students sexual health promotion	687 (65.1)	(.62094912 - .679345167)	369 (34.9)	(.320654833 - .37905088)
Limited Condom provision and replacement in the University	671 (63.5)	(.605567936 - .664508207)	385 (36.5)	(.335491793 - .394432064)
Social media platform for students to access sexual health information does not exist in the university site	682 ()	(.616139124 - .674711999)	374 (35.4)	(.325288001 - .383860876)
Safe sexual health posters or information not provided	687 (65.1)	(.62094912 - .679345167)	369 (34.9)	(.320654833 - .37905088)
Warning information on risky sexual behaviour not available	637 (60.3)	(.572984752 - .632877677)	419 (39.7)	(.367122323 - .427015248)

4.2. Study findings from the qualitative data

Across all three universities, six university key informants participated in an interview for the study, two from each university. Those interviewed included members of the university staff administration, and student guild administration

Each of the key informants were interviewed alone from their respective universities.

Objective one: prevalence of risky sexual behavours: Theme: Risky Sexual Behaviour

4.2.1 Sub theme: More than one sexual partner

Many key informants noted that there are some students who have multiple sexual partners in the university and outside university. Some have partners because they were married before and after joining the university. Very few students are living single life.

" Life at campus is funny, even someone you think is humble has a sexual partner if not at campus , then outside campus. There is what we call coupling campus life. No one wants to abstain and feel comfortably. University B, KI 4, some female students sell sex, University C, KI 6, "

key informants also noted that, there is pleasured fornication and cohabiting in all the three Universities.

4.2.2. Sub theme: Inconsistent condom use

Many key informants revealed the absence of condoms in the university premises. Condoms were not procured for students. "we are promoting Christian morals among students, so we want our students to start sex when they marry or get married, University B, KI 4, Talking about condoms in this university is an abomination, we discourage condom use by students till they finish their course and get married,, University B, KI 3, we do not have even a university clinic, no health worker so condoms have been absent for long , University A, KI 2, We do distribute condoms to students but one student can takes the whole box of condoms alone, few hours after distribution and we get discouraged, University C, KI 5"

Key informants noted that some students do not use condoms, "otherwise we should not be having cases of STI and unwanted pregnancies among students. We get 50 cases of STI per months among students, University C, KI 6"

4.2.3 Sub theme: Unfaithfulness to sexual partner(s)

Key informants noted that university students are not faithful to their sexual partners. A student may have different partner to satisfy different demands. Most of students pretend to be faithful but they are not. "A partner for coursework marks, a partner for rent and another partner for providing basic needs, University A, KI 2,"

4.2.4 Objective two: theme: individual factors.

4.2.4.1 Sub theme: Age / Sex

Many key informants noted that university students are mature and involve in risky sexual behavours when they want, except in cases of rape and these are rare. The female students are more vulnerable to risky sexual behavours because they want easy life and don't want to hustle and suffer.

"They use want they have, to get want they want, including good marks from some lecturers, money etc   University A, KI 2"

4.2.4.2 Sub theme: Habits (Alcohol, Drugs)

Many key informants agree that some students take alcohol and this can impair their reasoning and involve in risky sexual behavours "I assure you, you cannot remember to look for or to put on condom once you are drunk" University C, KI 5"

4.2.4.3 Sub theme: Peers Influence

Key informants noted that risky sexual behavours are influenced by peer pressure. Some students are sexually active and one in university they tend to persuade and influence their peers to join them in risky sexual behavours. "Those students who are morally not behaved well tent to spoil those innocent Students. University A, KI 1"

4.2.4.4 Sub theme: Lack of information on sexuality

Many of the key informants accepted that they lacked Information Education Communication materials to help create awareness on sexual health matters. I have not seen any IEC materials in this university apart from those of Covid 19, University B, KI 3, WE shall get those IEC materials once we get a functional university clinic and health workers University A, KI 2 "

4.2.5 Objective three: theme: Contextual factors

4.2.5.1 Sub theme: Culture/ Beliefs

Most of the key informants believed that western culture of labial pulling could be the one influencing risky sexual behavours. "Majority of the tribe here discourage labial pulling and that why may be these female students are not very sexually active to involve in risky sexual behavours University A, KI 1"

4.2.5.2 Sub theme: values

Most of key informants noted that in Kigezi region, girls are looked at as source of income and some are forced to get married while young and more often their marriage don't last longer hence making one to select their own choice after marriage break up, thus resulting in having more than one partner in life time, this also carries some risks when no testing for STI is done. People value money that life.

"I know of a female student here who was forced to get married to a man because the parent never had money to continue to paying for tuition and this man though he had other sexual partners but was willing to pay fees for her, University C,KI 6 "

4.2.5.3 Sub theme: Social Norms

Most families in our societies are practising polygamous families where some students come from. Such students may perceive that having many sexual partners as normal**. "**There is a student here who gets a new girlfriend every semester University B, KI 3"

4.2.5.4 Sub theme: Covid 19 pandemic

Most of key informants noted that, Majority of university students were influenced by conditions brought about by covid 19 pandemic and some were involved in risky sexual behaviours to survive particularly during the lockdown.

"With the current inflation during this covid 19, high increase in commodities may force some students to practice risky sexual behaviours University C, KI 6"

Covid 19 pandemic influenced and made universities to adopt and strengthen online teaching and those female students with no access to internet to study and do coursework, and examinations, had to look for someone to help. Some of them landed in hands of men who demanded for sex in return.

4.2.6. Objective four Theme: unmet need for sexual health services.

4.2.6.1 Sub theme: **IEC materials**

Majority of key informants noted lack of IEC materials in the university. We usually get IEC materials on covid 19. If its IEC materials on students codes of conduct, then we give our students during orientation of new students. I would be glad to receive such IEC materials on sexual health. "May be the burden of STI among students may reduce in this university University C, KI 6 ", .

4.2.6.2 Sub theme: Family planning

Most of respondents accepted that no family planning services are provided to university students. Since some students are sexually active, may be STI and unplanned pregnancy would reduce." We only distribute male condoms, university C, KI 6, Our religious core values don't support sex before marriage, hence no major reason to provide condoms to these young persons. University B, KI 4, Even if we had these family planning commodities, we do not have a qualified staff to dispense them University A, KI 2 ",

4.2.6.3 Sub theme: **Sexual health information**

Majority of respondents agreed that, there is no specific platform to provide sexual health information to students. Although we have ICT in the university, no single person has thought of creating a forum or group like WhatsApp for dissemination of health information to enhance good health through health education and health promotion

"Some students pretend to be holy, knowing sexual health information but I think they do not have access to all sexual information. University B, KI 3, if we had at least one health worker in this university maybe we could have access to such sexual health information University A, KI 2"

All the key informants admit, they have never been trained in sexual health and they are not skilled enough to incorporate such programs in their health schedules.

4.3 Study findings from direct observations

The research study was intended to observe the health-related affairs in the university to triangulate findings from both quantitative and qualitative data. Findings were based on observation from University A, University B and University C was covered from the University compound near to and in university clinics

4.3.1 University A.

There was new un functional structure constructed to be used as a university clinic with a sign post locating the   university clinic. There was no recruited health worker. All the university clinic services, like family planning commodities, sexual health information like information education communication materials, or condoms were all lacking.

4.3.2 University B.

There was functional university clinic, one health worker and some medicine and other supplies. The level of privacy for different gender was available by handling one client at time. The status of university clinic to student ratio was adequate. The clinic serves about thirty students per month of which about two have gonorrhea disease. There was no sign-post to direct students on the location of university clinic. The university clinic did not have sexual health education schedules and did not have and or provide family planning services and or condoms. There were no IEC materials on sexual health. Emergency contacts of health workers were not available.

4.3.2 University C

There was functional university clinic, three health worker and some medicine and other supplies. The level of privacy for different gender was available. The status of university clinic to student ratio was adequate. The clinic serves about five hundred students per month of which about fifty have STI. There was no sign-post to direct students on the location of university clinic.   At the time of observation, there were condoms in the university clinic and non in any designated areas like wash rooms, neither was condom container available. The university clinic did not have sexual health education schedules and did not have and or provide contraceptives. There were no IEC materials on sexual health. Emergency contacts of health workers were not available.

More details are found on table below

Table 4. 20: Direct observations

Expected University clinic Standard	University	Current observed State of university clinic	Recommendation for Improvement
Recommended student-to-	University A	551:0	500:1 (Student: doctor)

doctor ratio	University B	1790:1	1500:3 (Student: doctor)
	University C	2992:3	2500:5 (Student: doctor)
Level of Privacy for different gender	University A	Not applicable ; no existing university clinic	To establish and equip university clinic immediately
	University B	Good and available ; though one client must be served at a time to have privacy	Maintain Level of Privacy for different gender and lobby for more space separate for each sex
	University C	Good and available ; though one client must be served at a time to have privacy	Maintain Level of Privacy for different gender and lobby for more space separate for each sex
State of university clinic to student ratio	University A	Not applicable. No university clinic present	To establish and equip University clinic immediately
	University B	Adequate: 30 students are served per month as outpatient. Inadequate to serve more than 2 students as in patients.	lobby for more space separate for each sex
	University C	Adequate; 500 students are served per month Inadequate to serve more than 4 students as in patient	lobby for more space separate for each sex
Regular, sufficient supply of logistics	University A	Not applicable; no condom supplies or equipment	To establish and equip University clinic immediately
	University	logistics supplies is each	Include family planning

(condoms, equipment's)	B	semester but no condoms or family planning commodities	commodities and condoms during ordering of medications
	University C	logistics supplies is each semester but does not include family planning commodities	Include family planning commodities and condoms during ordering of medications
State of the IEC materials provided to students	University A, B and C	Non for sexual health related matters	Order and Avail sexual health IEC materials to students
Reserved condom storage container	University A,B and C	Not available; no condom seen in any priority areas like wash rooms	Avail Reserved condom storage containers and have regular refills
State of the university clinic environment sanitation	University A	Not applicable, no university clinic available	To establish and equip university clinic immediately
	University B and C	Good; follow SOPs	Maintain State of the university clinic environment sanitation and continue Observing SOPs
Clinic Waste Management system	University A	Not applicable; No university clinic available. No recruited health worker	To establish and equip university clinic immediately

	University B and C	Good; follow SOPs	Maintain State of the university clinic Management system and continue Observing SOPs
Hand Washing and other COVID precautions	University A, B and C	In place and functional	Continue Observing SOPs
Presence of family planning methods	University A	Not applicable; No university clinic available. No recruited health worker	To establish and equip university clinic immediately
	University B and C	No family planning commodities ordered or supplied except male condoms	Order family planning commodities and provide family planning services
Staffs present in uniform	University A	Not applicable; No university clinic available. No recruited health worker	To establish and equip university clinic immediately
	University B and C	Not in uniform; declined to have a photo due to not wearing of uniform	Ensure University clinic staffs on duty are dressed in uniforms
Number of clinic staffs present	University A	Not applicable; No university clinic available. No recruited health worker	To establish and equip university clinic immediately
	University B	one ; only one female nurse was recruited and was present	Recruit more staffs to run university clinic and
	University	Two ; only two female nurses	

	C	a were recruited and only one was present while one male was recruited and was present	improve health care services
Common STI conditions in register	University A	Not very sure, no health data yet, until the university sick bay start functioning	To establish and equip university clinic immediately
	University B	Mostly 2 cases of Gonorrhoea recorded per months	Need to increase awareness on sexual health information and partner counselling and treatment
	University C	mostly 40-50 cases of STI recorded per months	
Number of students who are served per month	University A	Not very sure, no health data yet, until the university sick bay start functioning	To establish and equip university clinic immediately
	University B	30 students are served per month	Emphasize health education and promotion in university
	University C	500 students are served per month	
Number of students who are given sexual health counselling	University A	Not applicable; No university clinic available. No recruited health worker	To establish and equip university clinic immediately
	University B	Non; only religious sexual morals are preached and emphasized in the chapel	Emphasize health education and promotion in university
	University C	50-100 per month by university counsellor	
Availability of IEC materials	University A	Non for sexual health related matters	To establish and equip university clinic immediately
	University B and C	Non for sexual health related	

		matters	Avail sexual health IEC materials to students
Health education schedule if available	University A, B and C	No program; no schedule seen	To establish and equip university clinic immediately
		No program; no schedule seen	Have Health education schedule available and implemented
Poster showing contacts of doctor if needed	University A	Available but not accessible (on academic registrar door inside)	Have Posters showing contacts of doctor if needed urgently
	University B and C	Not available Not accessible	Have Posters showing contacts of doctor if needed urgently
Emergency contacts availability and accessibility	University A, B and C	Not available Not accessible	Have Emergency contacts availability and accessible to all university students

4.4 Analysis of the study dependent and independent variables

The purpose of the study was to determine the magnitude and factors associated with risky sexual behaviors among undergraduate students in selected universities in Kigezi sub region.

Findings from the study revealed that individual or personal linked risk behaviors, also the contextual and environment related risk factors and un-met need for sexual health services are the influencing factors among the independent variables in the study. Conclusively, the afore-mentioned variable relationship arose from the multinomial regression statistical analysis and was also supported from the findings from the interviews and observation conducted in the study.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

This chapter discusses the findings presented in chapter four of this report.

5.1 DISCUSSION

The study was about the magnitude and factors associated with risky sexual behaviors among undergraduate students in selected public and private universities in Kigezi sub region. The research was guided by objectives and analysis was presented in chapter four. Explanations of findings are discussed below;

Data was collected from total of 1056 participants, Majority of the study participants were males 597(56.5%) and 459 (43.5%) were females. All were selected randomly.

Consequently; 606 (57.4%) from public and 450 (42.6%) from private University. . The predominant religion was Christians with 1015 (96.1%). Of all the study participants 877(83%) lived with parents and only 179(17%) were living with guardians. Living with parents is associated with risky sexual behaviour reduction than living with guardian, although many students are turning to the Guardian for open, independent, quality sexual news . Students fear to misbehave sexually in eyes of parents and tend to hide all risky sexual behavours until they are away from parents. The freedom at campus makes some weaker gender vulnerable to unplanned pregnancies, and STI including HIV/AIDS. This disagreed with the study among university students in Ethiopia which revealed that 55.8% of the respondents did not live with their parents (Tekletsadik et-al, 2021)

The study revealed Social demographic factors associated with risky sexual behaviors during COVID 19 pandemic among undergraduate students aged 18-24 in selected public and private universities in Kigezi sub region. The study findings revealed that being in age range of 22-24 years was associated with risky sexual behavior with 34.5%. This age range is associated with experimentation and exploration which predispose university students to risky sexual behavours. This was in disagreement with study done by (Taylor 2000) who found out that15 – 19 years of age are prone to STI and about 60.3% Ugandan students reported having debuted sexually (Devika 2013)

Also study findings revealed that living in hostel was not associated with increased risky sexual behaviour. Most of universities do not provide condoms to students and some adhere to abstaining. However another school of thought is that university hostel is not favourable for comfortable sexual affairs since some students share rooms and others have sexual partners outside university. The university hostel has a lot of restrictions attached and some students pretent to be sexually naïve while in university premises. This is not in agreement with Abolfotouh et al, 2007 who points out that 28% of the students adopted 3 or more current risk behaviours while in hostels.

Furthermore, students year of study particularly in fourth year was associated with risky sexual behavior with 68.8%. Senior students have conquered and adopted to campus life with admirable basic needs and tend to tease and bull new students with intention of fornication. Some senior students are in leadership position which puts them at the advantage of persuading and convincing new students with myth about sexual relationship at university. This study was similar to a study done by Quinn & Fromme (2010) who said that High self-regulation assumed by senior students predispose them to unprotected sex.

The study determined the prevalence of risky sexual behaviours, findings from the students on Prevalence of risky sexual behaviours during COVID 19 pandemic, showed that about, 466 (44.1%) strongly agree that alcohol misuse could make one lose concentration and engage on risky sex. Furthermore, findings from most of the students in the study, revealed that 374 (35.4%) Extreme cold weather of the in Kigezi sub region increases the risk of causal risky sex. environmental related risk factors and individual / students' personal risks and prevalence of sexual risk behaviors showed that students' personal risks was statistically significant with (p- value = 0.000 < 0.05). This study found the prevalence of risky sexual behaviour of 47%. This agrees with findings from qualitative data and observation which revealed absence of condoms and IEC materials in the universities. This may explain that students are not informed and practicing sexual risk reduction measures This prevalence was much higher than the prevalence of 26% in Uganda before covid 19 pandemic , much lower than 63.9% in Botswana and 63% in Nigeria The prevalence of RSB of undergraduate students of the University of Gondar, Ethiopia was 44.0% (Tekletsadik et-al, 2021) Probably because this study was done in Covid 19 pandemic and situations varied. The 47% prevalence of risky sexual behaviour among undergraduate students in kigezi sub region

could have been attributed by situations created by Covid 19 pandemic coupled with inflation.

Related study showed that university is a central place where health activity programs should be conducted (Mulubwa 2020).

The study also wanted to assess the risky sex vulnerability and results showed that, 447 (42.3%), Poor sexual risk behavior awareness increases vulnerability and this also support (UNAIDS 2016) report that young people are at increased sexual risks and vulnerabilities to HIV/AIDS. The results from the study revealed that gender was not significant associated by prevalent risky sexual behaviours. This is in agreement with a study done by Tanyag 2019 who reported young people are impacted by direct and indirect consequences of health problems. These findings highlight the importance of socializing habits in understanding risky sexual behavior.

In conclusion, the prevalence of risky sexual behavour in this study was 47%.

The study identified individual factors associated with risky sexual behaviours, results from the students Living in school or not revealed that being a student of public university was associated with risky sexual behaviour with a p-value of 0.00 <0.05 Also the study was sought to understand if staying in hostel or not was associated with risky sexual behaviour. Findings were statistically insignificant at p-vale of 0.13. This is in disagreement with a study done by Puri & Cleland (2006) who noted irregular use of condoms among hostel occupants.

In this study, few of students staying in university hostels, their university does not provide condoms.

The study found contextual factors associated with risky sexual behaviour, the study results showed that 806 (76.3%) of Extreme climate of cold, forces people to seek warmth in the arms of admirers and unsafe sex. This coincided with the study which revealed that men's libido seems to increase in the cold weather and have good quality of sperm produced.(Mailonline 2022) The study also revealed a Limited Condom provision and replacement in the Universities by 671 (63.5%). This may lead to irregular use of condoms by students if they do not have money to condoms.

The study determined the Unmet need for sexual health services and identified Limited Family planning, with regards to unmet needs for sexual health activities about 637 (60.3%, 95%CI (.591176201 - .650570386). For Uganda to achieve SDG-3 by 2030, realize

demographic dividends, the young generation must be healthy and productive. University students are hoped to secure the future and contribute to country developmental innovations but this may be possible when their sexual health needs are addressed effectively and efficient to enhance their health. University clinics lack information education material for sexual health sensitization and this could explain the risky sexual behaviors exhibited by some university students. It is important to note that students are obliged to rights of information and education on their sexual and reproductive health free from age discrimination. (Richards, 2013)

5.2 SUMMARY

The study findings revealed social demographic factors associated with risky sexual behaviors' and these include; type of the school, age factor, type of university , name of university, and level (year) of student study which were statistically insignificant. This may be due to a lot of freedom in public university with majority of students in age range of 20-22 which is characterized with risky sexual behavours.

The first objective determined prevalence of risky sexual behavours and was found to be 47% among undergraduate university students in kigezi sub region.

The second objective of the study sought to identify individual factors associated with risky sexual behaviours during COVID 19 pandemic among undergraduate Students aged 18-24 0f selected public and private Universities in Kigezi sub region and findings were statistically significant with the prevalence of risk sexual behaviors among students of Universities in the study.

The third objective sought information contextual factors associated with risky sexual behaviours during COVID 19 pandemic among undergraduate Students aged 18-24 0f selected public and private Universities in Kigezi sub region and it was statistically significant

Lastly, fourth objective of the study sought to find unmet need for:sexual health services ;activities, unmet for family planning services, and sexual health counseling which were found to be statistically significant

The study findings from the qualitative study agreed with all the findings from the quantitative study with regards to the individual sexual risk behaviors', contextual risk behaviour and unmet needs for sexual reproductive health services in the University.

5.3 CONCLUSION

This study has established significant factors associated with risky sexual behaviours during COVID 19 pandemic among undergraduate Students aged 18-24 0f selected public and private Universities in Kigezi sub region

The significant findings make the health belief model, theory applicable to solving risky sexual behaviours among Students 0f Universities in Kigezi sub region

The significant influences of sexual health services, family planning, IEC Materials and health worker trainings are empirically-based findings that were inadequate and can ignite future implantation research studies

Furthermore, this study provided testable factors associated with risky sexual behaviours among undergraduate Students aged 18-24 0f selected public and private universities thus the study contributes to the existing literature on risky sexual behaviours among undergraduate students.

The findings address the matters of sexual behaviour, use of contraception, disease prevention, and STI and HIV/AIDS risk among students in universities, including an appreciation of the behavioural and decision-making differences that exist across the three Universities

This study as found significant findings on unmet needs for; sexual health counselling, sexual health activities and family planning. Furthermore, the study identified significant findings on areas of ; individual(personal), and contextual(environmental related) risky sexual behaviours.

5.4. RECOMMENDATION

The study makes the following recommendations to various levels:

University Students

The study recommends university students to seek early diagnosis, treatment and management of sexual health diseases and disorders from health care facilities including university clinic to enhance students health and prevent complications.

- The study recommends on decent dressing implementations by students during lecture hours and while in university premises.

The study recommends on training of university students on sexual health.

Students to enroll and utilize all platforms available in university when such window of opportunity opens to get sexual health matters

Universities

This study recommends that University A recruits health care worker and   equip their proposed sick bay with resources (medicines and supplies)to kick start health services as soon as possible to students.

This research study recommends that all university clinic staffs should wear uniforms while on duty for proper identification and also to ensure SOPs.

This study recommended that university platform be formed and managed by ICT department to regularly provide sexual health information to students so as they are able to make informed consent on health matters

The study recommends university clinic staff on health education and promotion programs be included on university clinic schedule to increase sensitization of students

The study recommends university clinic staff to avail the students with emergency and doctor's contact for urgent help and consultation including "SAUTI toll free " 116.

The study recommends university staffs to lobby for more support through partnerships with other local and international organizations and agencies to improve students' health.

The study recommends on training of university clinic staffs on sexual health.

The study recommends on decent dressing code policy implementations

Ministry of health, district and municipality health office, partner agencies.

The study recommends multi sectoral collaborations to improve the health of students .

This study therefore recommended that IEC materials and family planning commodities be accessible and available free of charge to students in university priority areas by university clinic staffs

There is a strong need to double efforts creation of awareness campaigns and sensitization of communities about sexual health services, at university clinics and other health care facilities.

The study recommends recruitment of students peers to help in dissemination of IEC materials, condoms, to mention but a few.

To establish condom containers in all university priority places and ensures its refills by both male and female condoms

The study recommends designing and implementing sexual risk reduction programs in university-based health care services in Uganda.

 Suggestion for further studies

- To conduct needs assessment on trainings of university health care workers and students on sexual health services.
- Also assess the utilization of family planning services at university clinics in Kigezi sub region

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APPENDICES

Appendix **I**

COVID 19 RISK MANAGEMENT PLAN

It is challenging to predict the impact of COVID-19 on human population during conduct of research but the safety of study participants, researchers and the integrity of research remain paramount. To build more sustainable world, using evidence, action and influence, working in partnership with others conducting research in the midst of a global pandemic presents new ethical issues that require precaution and strictness to COVID protection is required.

Therefore, the COVID risk management plan that assist the researchers with COVID-19 prevention and promotes compliance with investigation and conduct of research involving human population adopted in this study are as listed below:

i. Continue with data collection as previously planned.

ii. Modify data collection methods to take account of the need to protect research staff and research participants and to comply with local regulations that includes social distancing, wearing of mask and use of hand sanitizer and promotion of vaccination among non-immunized study participants.

iii. Where possible to consider shifting to virtual methods of data collection, or modifying protocols for face-to-face engagement.

iv. Reconsider the choice of focus group data collection method that involve group gatherings, if possible (number of people determined by local regulations or advice).

v. \Where possible to have pre-assessment of vulnerable groups and ensuring they are not involved in face-to face data collection.

vi. Ensuring that face-to-face data collection takes place outdoors with suitable physical distancing between researcher and research participants.

vii. To postpone data collection in area of high vulnerability until the situation improves or changes.

viii. Total cancellation of data collection in places with severe challenges.

Note: the researcher considered carefully how best to proceed with the research on a case-by case basis, and to seek support and expert advice from relevant authority.

Concerned area in the Study	Possible Risks	Who is at Risk	Risk Management Strategy Deployed	Person Responsible for Risk mitigation	Expected Outcome
During Pilot testing and during field visits and consultation	COVID Transmission Across Study Stakeholders And Research	- Similar study population - Researcher	- SOP with face mask, - Hand sanitizer, - Social distancing - Data collection outside the house - Maintaining privacy	Researcher In charge person of the area of the study	Risk Checked and reduced
Data collection for questionnaire	COVID Transmission Across Study Stakeholders And Research	- Study despondence, Researcher, - Research Assistants		Researcher In charge person of the area of the study	
During in depth interview	COVID Transmission Across Study Stakeholders And Research	- Other stakeholders in the study		Researcher In charge person of the area of the study	

APPENDIX II

Consent form for Participants (For Questionnaire)

Complement! I am called Bahati Amon student of Public health department of Kabale University conducting study on the title: '' **factors associated with risky sexual behaviors during COVID 19 pandemic among undergraduate students of universities in Kigezi sub region"** that has been approved by University C and permission given by university secretaries of University A, University B and Kabale Universities.

Taking part in this study is voluntary. If you agree to participate, I will ask you some questions to determine the Sexual Health Counseling andfactors associated with risky sexual behaviors during COVID 19 pandemic among undergraduate students of universities in Kigezi sub region. I sincerely promised not take much of your time and no problems would arise, but if you choose at any time not to continue, you are free to withdraw from the interview at any point, you're free.

There are no direct benefits for choosing to participate in this interview, but by participation, you will be helping researcher, University A, University B and Kabale Universities and others to drive future reforms for the good of the students and University system. Promised to ensure that your personal information is kept private and record will not have your name, but only used for purposes of the study.

At this time, do you want to ask me anything about the study? If you have any questions at any time even after the interview, feel free to question me through this number: **+256755775024**. Now that the consent form has been read and explained and understood, further questions are addressed.

 I therefore willingly agree to take part in the study.

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _

Initials of adult participant   Signature/Thumbprint of participant /   Date
                                          Parent/Guardian/Next of Kin

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _ _   _ _--------

Initials of Researcher   Signature   Date

Section A. Study Respondent Social demographic characteristics

Name of university; _____.

Type of university: Public _____   Private_____

Level / Year of the Student; e.g. First Year Level Student:

_____

Department: e.g. bachelor of _____.

Table; A; Study Participants Demographic Characteristics

Study Question Variables	Options	Tick as applied to you
Students' Gender	Male	
	Female	
Religion	Christian	
	None Christian	
Family Depend	Living with Parents	
	Guardian	
Living in school	Living in university hostel	
	Not – living in university hostel	
Age of the Students	18 – 19years	
	20 - 22 years	
	23-24 years	
Students sources of medical services	University clinic	
	Nearby Private clinic	
	Public health care facility	

4. What is the prevalence of risky sexual behaviours during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

Table; B Prevalence of risky sexual behaviours during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

(Strongly disagree, Disagree, Undecided, Agree, Strongly Agree)

Questions items of prevalence of risky sexual behaviour	SD	D	UD	A	SA
Alcohol misuse could make one lose concentration and engage on risky sex					
Uncircumcised males are more likely to have infection from unsafe sex					
Indecent dressing makes girls at risk of sexual harassment					
Limited access to condom protection increases sexual related disease risks					
Extreme cold weather of the region increases the risk of causal risky sex					
Inconsistent and none used condom protection during sex carry great risk					
Poor sexual risk behaviour awareness increases vulnerability					

Table b. item questions specific to risky sexual behavours

Questions	Yes	No
Do you have multiple sexual partners?		
Do you use condoms consistently every time you have sexual intercourse?		
Do you think you are more faithful to your sexual partner?		

5. What are the individual factors associated with risky sexual behaviors during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

Table; C Individual factors associated with risky sexual behaviours during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

(Strongly disagree, Disagree, Undecided, Agree, Strongly Agree)

Questions items for Individual level factors in student risky sexual behaviors	SD	D	UD	A	SA
Being young and fragile made me be able to overcome sexual harassment and abuses during the lockdown					
As a weaker gender, men usually overpowers me to have sex with me					
Idleness during COVID lockdown pushes casual sex behaviour					
Being single without spouse makes me try to get a spouse by trying to satisfy my partner through sex to hasten marriage					
Peer pressure influence me to indulge in risky sexual behaviors					
Trying to belong to my peers often lures to unsafe sex					
Financial pressure pushes young people to engage in sex for money to solve crucial need					

6. What are contextual factors associated with risky sexual behaviour during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

Contextual factors?

Questions on contextual factors that predispose students to risky sexual behaviors	Yes	No
Community culture does not frown at reckless sexual behaviour		
Border communities have high activities of migrants and with risky sexual behaviour		
Absence of dress code policy in some higher institutions contributes indecent dressing and sexual harassment		
Over protection by parents at home, exacerbate the need among youths to enjoy liberty through sexual experiments		
Freedom at university create room time steal sex from numerous admirers		
Extreme climate of cold forces people to seek warmth in the arms of admirers and unsafe sex		

7. What are the unmet needs for sexual health services during COVID 19 pandemic among undergraduate Students of Universities in Kigezi sub region?

Table: D. Unmet need for family planning services

Question items on unmet need for family planning services	Yes	No
Limited Family planning program and activities in the university		
Sexual Education and protection (condom) not regularly provided		
Condom made available and accessible to all students		
Family planning session available separate for males and females		

Table: E. Unmet need for sexual health counseling services

Questions items on unmet needs for sexual health counseling services	Yes	No
Sexual health counseling corner not available when the need arise and for confidentiality		
Sexual health education and information counseling not regularly provided		
Mental health counseling and support services not existing		
Absence university counselors to seek help from as the arise		
Needed sexual health counseling services are not available		

Table: F. Unmet need for sexual health activities of the university

Questions of the sexual health activities of the university	Yes	No
University clinic lack information education material for sexual health sensitization		
None existence program for students sexual health promotion		
Limited Condom provision and replacement in the University		
Social media platform for students to access sexual health information does not exist in the university site		

Safe sexual health posters or information not provided

Warning information on risky sexual behaviour not available

Direct observation carried out by researcher through site visits to university selected in the study

Table: G Observation Checklist

Expected University clinic Standard	Current observed State of university clinic	Recommendation for Improvement
Recommended student-to-doctor ratio		
Level of Privacy for different gender		
State of university clinic to student ratio		
Regular, sufficient supply of logistics (condoms, equipment's)		
State of the IEC materials provided to students		
Reserved condom storage container		
State of the university clinic environment sanitation		
Clinic Waste Management system		
Hand Washing and other COVID precautions		
Presence of family planning methods		
Staffs present in uniform		
Number of staffs present		
Common STI conditions in register		

Number of students who are served per month

Number of students who are given sexual health counseling

Availability of IEC materials

Health education schedule if available

Poster showing contacts of doctor if needed

Emergency contacts availability and accessibility

APPENDIX IV

Key Informant guide for Guild President

1. Kinds of trainings on sexual health targeting students at the university

Probe: Did it help or do you think there is need for training

2. What kinds of information education communication (IEC) materials that are provided for the students?
   Probe: what more could be done to improve students' awareness?
3. What are the risky sexual behaviours common among undergraduate students?
   Probe: have University done enough to address it
4. University platform have provided forum to meet the unmet need for undergraduate students sexual health information?

Probe: have the student benefited from it and have there been observable evidence of behaviour change

5. Do you think university clinic is meeting the students sexual health service needs?
   Probe: what more do you think that could be done to improve clinic services

Consent form for Key informants for University Administrator

Complement! I am called Bahati Amon student of Public health department of Kabale University conducting study on the title: 'Magnitude and factors associated with risky sexual behaviour among undergraduate students in public and Private Universities in Kigezi sub Region" that has been approved by University C and permission given by university secretaries of respective universities (University A, University B and University C).

Taking part in this study is voluntary. If you agree to participate, I will ask you some questions to determine Sexual Health Counseling andfactors associated with risky sexual behaviors during COVID 19 pandemic among undergraduate students of universities in Kigezi sub region. I sincerely promised not take much of your time and no problems would arise, but if you choose at any time not to continue, you are free to withdraw from the interview at any point, you're free.

There are no direct benefits for choosing to participate in this interview, but by participation, you will be helping researcher, University A, University B and University C and others to drive future reforms for the good of the students and university system. Promised to ensure that your personal information is kept private and record will not have your name, but only used for purposes of the study.

At this time, do you want to ask me anything about the study? If you have any questions at any time even after the interview, feel free to question me through this number: +256755775024. Now that the consent form has been read and explained and understood, further questions are addressed.

 I therefore willingly agree to take part in the study.

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _

Initials of adult participant   Signature/Thumbprint of participant/   Date

                                                    Parent/Guardian/Next of Kin

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _   _ _ _ _ _ _ _ _ _ _ _ _

 Initials of person obtaining   consent Signature   Date

Key Informant guide for University Administrator

1. Kinds of trainings on sexual health targeting students at the university

Probe: Did it help or do you think there is need for training

2. What kinds of information education communication (IEC) materials that are provided for the students?

   Probe: what more could be done to improve students' awareness?

3. What are the risky sexual behaviours common among undergraduate students?

   Probe: have University done enough to address it

4. University platform have provided forum to meet the unmet need for undergraduate students sexual health information?

Probe: have the student benefited from it and have there been observable evidence of behaviour change
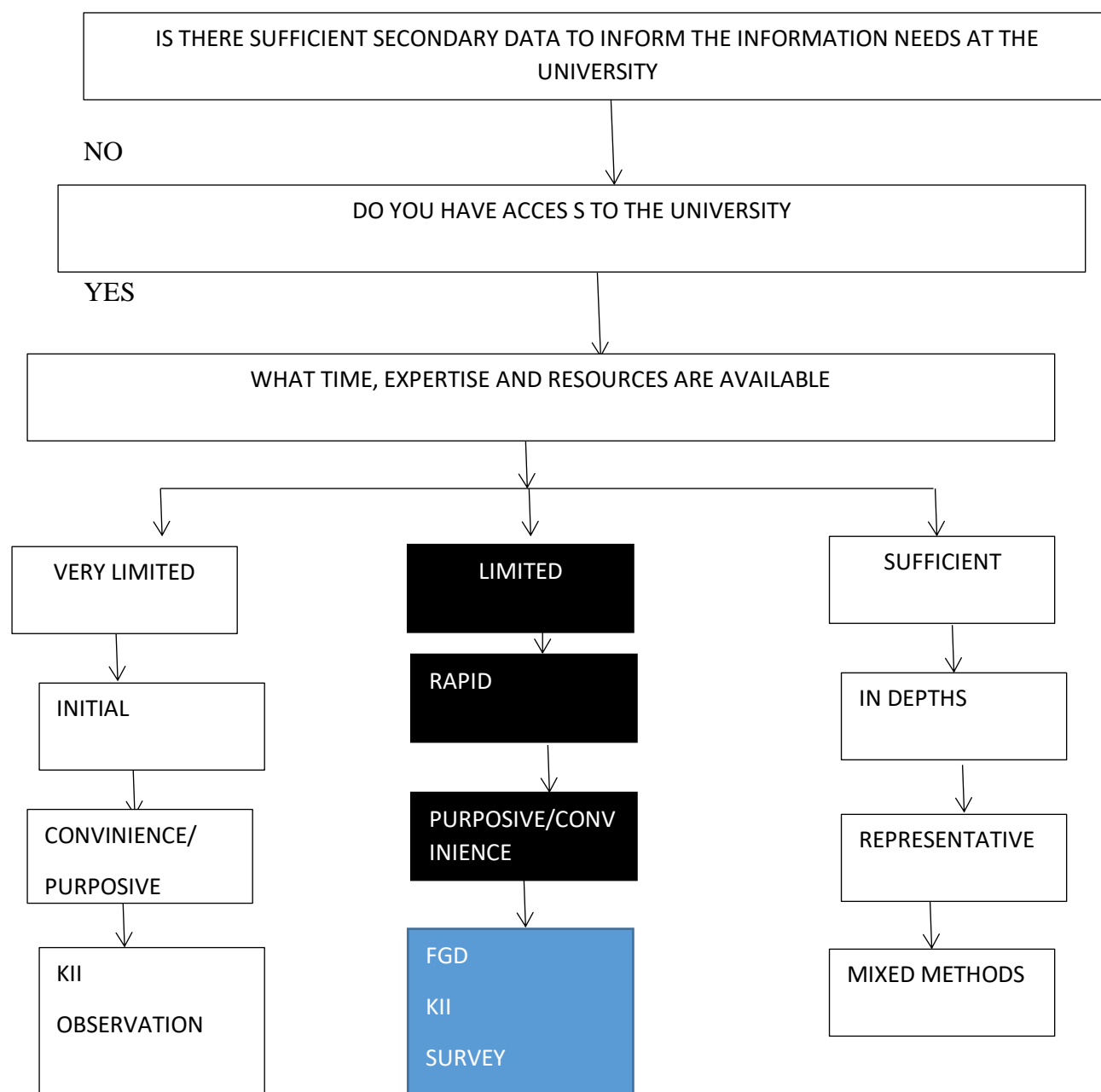
5. Do you think university clinic is meeting the students sexual health service needs**?**

   Probe: what more do you think that could be done to improve clinic services
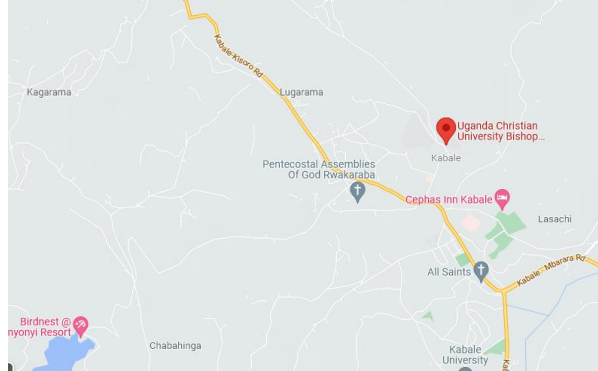
FLOW CHART TO DETERMINE MOST APPROPRIATE DATA COLLECTION METHODS
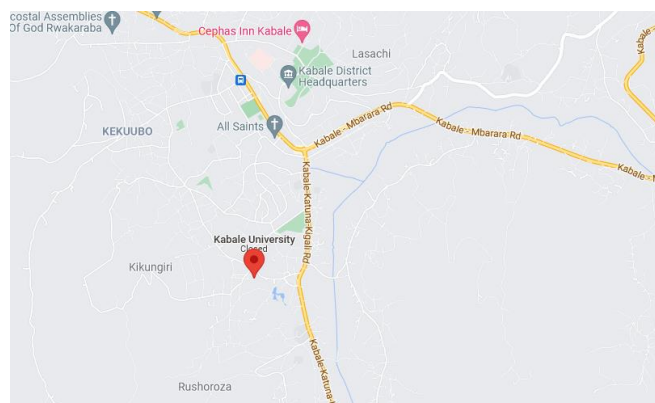
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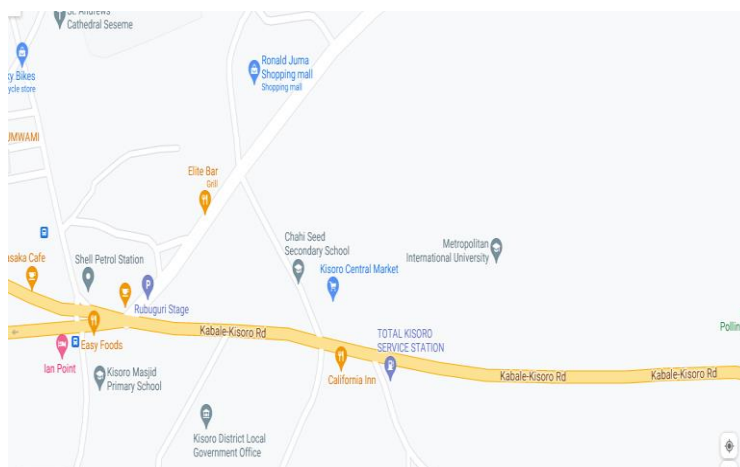
Appendix X:

Map of University A

Appendix XI:
Map of University C

APPENDIX XII

MAP OF UNIVERSITY A

Appendix XIII:

Study population

No.	Universities in Kigezi sub region	District
1	Metro Politan University	Kisoro
2	Great lakes University	Kanungu
3	University B (constituent College Of Uganda Christian University)	Kabale
4	University C	Kabale
5	Makerere College Of Business And Computer Studies	Rukungiri
6	Team University-Rukungiri branch	Rukungiri
7	Uganda Martyrs University Kabale campus	Rukungiri

Appendix XIV:

Study target respondent's population

University	Target population	Sample size (target popn for each university x sample size/ total target popn)	Sampling methods
University C	2992	(2992 x1046/5303)=596	Purposive
Metropolitan 1nternational	551	108	Purposive
University B	1760	386	Purposive
TOTAL	**5303**	**1046**	**N/A**

Appendix XV:

Population from University A

Faculties	Target population	Sample size(target popn for each faculty x sample size for the university/ total target popn for the university)	Sampling method
Education and Humanities	257	257X100/551=47	Simple Random
Business Administration and Management	156	156X100/551=28	Simple Random
Science and Technology	138	138X100/155=25	Simple Random
TOTAL	**155**	**100**	N/A

Appendix XVI

Population from University C

Faculties	Target population	Sample size(target popn for each faculty x sample size for the university/ total target popn for the university)	Sampling method
Education	1104	1104x596/2992=220	Simple Random
Arts and social sciences	237	237x596/2992= 47	Simple Random
Economics and management science	441	441x596/2992=88	Simple Random
School of medicine	426	426x596/2992= 85	Simple Random
Engineering, tech, applied design and fine art	424	424x596/2992=85	Simple Random
Science	22	22x596/2992=4	Simple Random
Computing lib and information science	213	213x596/2992=42	Simple Random
Agriculture and natural resources	125	125x596/2992=25	Simple Random
Total	**2992**	**596**	N/A

Appendix XVII

Population from University B

Faculty	Target population	Sample size (target popn for each faculty x sample size for the university/ total target popn for the university)	Sampling method
Administration and management	92	92x350/1760=18	Simple Random
Education and theology	1388	1288x350/1760=276	
Business and management	280	280x350/1760=56	
Total	**1760**	**350**	

Appendix XVIII

Study stakeholders sampling technique

| University	Target population	Sample size	Key informants	Sampling method
Kabale	2	2	Guild representative University administrator	Purposive
University B	2	2	Guild representative University administrator	Purposive
University A	2	2	Guild representative University administrator	Purposive

Appendix XIX

Data collection tools and techniques

Tools	STUDENTS	KEY INFORMANTS	ENVIRONMENTAL SITUATION
Data collection tool	Questionnaire	Radio recorder, key informant note book	Camera , data extract form
Type of check list	Questionnaire guide	Key informant interview guide	Data extract guide
Method of data collection	Interview	Key informant interview	Observation

Source: self-generated

APPENDIX XXX

SUMMARY OF DATA ANALYSIS
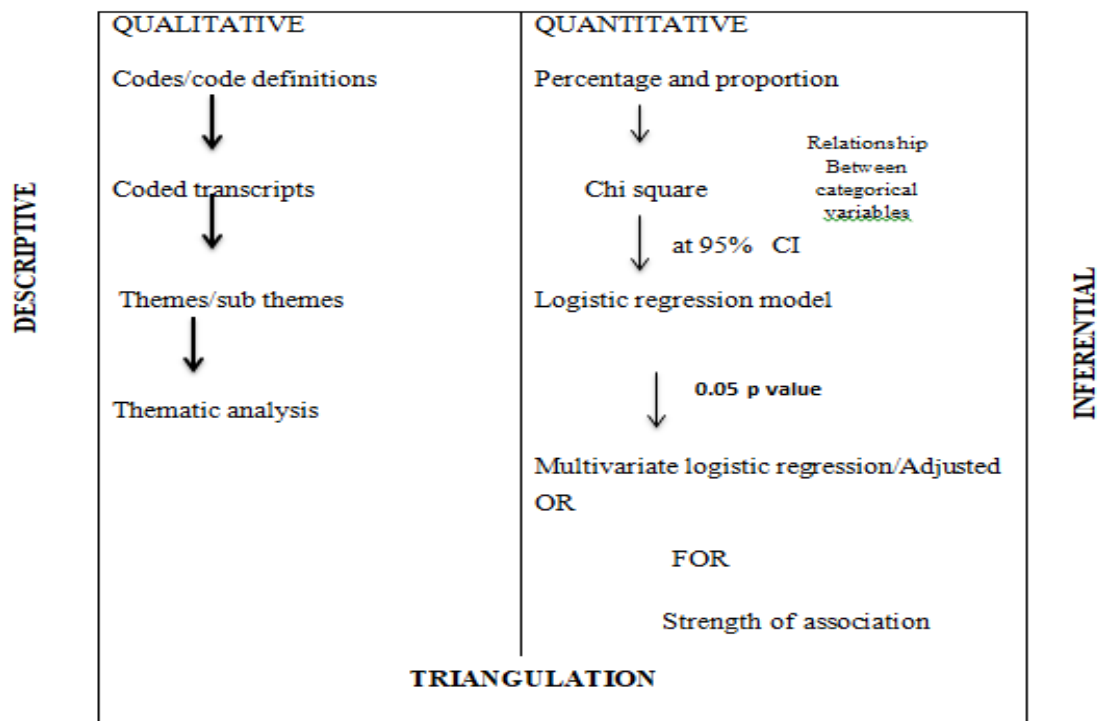
Figure A: Absence of condoms and condom containers at one of the University C Latrines

Figure B: No Information Education Communication Matereial on one of University

Figure D: University C Medication Stock

Figure C: One of University C Clinic Bed